Final Report

ALCOHOL CONSUMER SURVEY
BOTSWANA

For
INTERNATIONAL ALLIANCE FOR
RESPONSIBLE DRINKING

IARD
INTERNATIONAL ALLIANCE FOR
RESPONSIBLE DRINKING

By

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Executive Summary

The International Alliance for Responsible Drinking (IARD) has conducted alcohol consumer surveys in India, Vietnam, and the Baltics, using a set of beverage specific alcohol quantity-frequency questions that include questions on commercial alcohol and all types of unrecorded alcohol (homemade, counterfeit, contraband, surrogate).

IARD expressed an interest in conducting similar surveys in Africa and identified Botswana as a possible survey location. In view of the fact that the drinking environment varies from country to country and region to region, IARD required that the survey instruments used in India, Vietnam, and the Baltics were adapted to the Botswana situation. None of the adaptations did not alter key measurement variables.

Objectives
The key objectives of the survey were to:
- Establish the prevalence of alcohol consumption in Botswana
- Determine the most widely consumed alcohol varieties
    - Commercial alcohol (beer, wines, AFBs, Chibuku spirits)
    - Unrecorded alcohol (Khadi, Bojalwa, Setopoti, Skhokho, etc.)
    - Counterfeit and contraband alcohol (commercial varieties)
    - Surrogate alcohol (cough syrup, mouthwash, cologne, industrial solvents, etc.)
- Determine the frequency and volume of alcohol consumption and the average per capita consumption of all types of alcohol enumerated
- Relate consumption frequency and volume to demographic, socioeconomic and health factors and, where applicable, to attitudes towards alcohol consumption and alcohol policy.

Findings

Prevalence of Alcohol Consumption in Botswana
The sample consisted of n=5261 eligible respondents, of whom 5222 agreed to be interviewed. 44% were lifetime abstainers. The overall prevalence of ever consuming any type of alcoholic beverage was 56%. Of these, 62% were current drinkers (had consumed a drink containing alcohol in the last 12 months) and 38% were former drinkers (had consumed alcohol, but not in the previous 12 months). The overall prevalence of current drinkers was 35%. Of these, 31% had consumed commercial alcohol and 10% had consumed homemade alcohol in the previous 12 months. 25% and 3% of all respondents exclusively consumed commercial or homemade alcohol, respectively. 6.2% of respondents had consumed both commercial alcohol and homemade alcohol in the previous 12 months. Fewer than 1% of respondents had consumed counterfeit, contraband and / or surrogate alcohol in the previous 12 months.

Most widely consumed alcohol varieties in Botswana
Commercial alcohol (beer, wines, AFBs, Chibuku spirits)
Beer is the most popular commercial variety with 43.4 % of respondents stating that it was their preferred beverage. While Spirits ranked lowest at 7.8%. Chibuku and Cider were also popular varieties with 17.2% and 17.9% respectively.
72% of all male current drinkers drink beer, compared to 29% of female current drinkers.
Chibuku is also consumed by a greater percentage of male (30%) than female (9%) current drinkers.
A greater percentage of female current drinkers drink cider (49%) and wine (23%) than male current drinkers (14% and 15% respectively)

Overall the most widely consumed homemade varieties were bojalwa jwa Setswana (6%), khadi (4%) and mokuru (0.6%) in the last 12 months. Consumption of all other varieties combined accounted for 1% of all types of alcohol consumed. Bojalwa jwa Setswana is the most popular homemade variety.

Volume of Alcohol Consumption
Counterfeit and Surrogate alcohol volumes are negligible and are not included in the litres of pure alcohol (LPA) computations, which are limited to Commercial, Contraband and Homemade beverages only.

An estimated 7,959,137 litres of pure alcohol (LPA) per year is consumed in Botswana. Based on combined LPA, people with no formal education drink more of unrecorded (64%) and only 36% recorded alcohol while retirees drink equal share of both alcohol types. Similarly people who reside in rural areas drink alcohol in the proportion of 55% recorded against 45% unrecorded alcohol. Males consume 83% of all alcohol in Botswana. Low income (< P2,500 p/m) earners drink 63% of all alcohol consumed in Botswana, almost one third of which is unrecorded alcohol.

Average per capita consumption of all types of alcohol
The estimated median is 8.2 LPA per capita per year. An estimated total of 1,815,422 LPA from unrecorded alcohol is consumed annually, which would constitute approximately 23% of all alcohol consumed in Botswana, while recorded alcohol, with an estimated 6,143,715 LPA, constitutes 77% to the national annual total.

Relation between consumption frequency/volume and demographic factors
Males drink beer at a ratio of 1 to 6 compared to females. Cider (11%) is the most popularly consumed commercial alcoholic beverage among females. Chibuku and spirits are consumed by more males than females. Among those aged 15 and older (eligible study sample, n=5222), 20% consumed beer, 6% wine, 9% cider, 8% Chibuku, and 4% consumed spirits. Cider was predominantly consumed by respondents under 30, while youth were the lowest consumers of Chibuku. Beer is the most popular commercial alcoholic beverage among all groups except females and retirees. Chibuku consumption is dominated by males aged 31-50 who reside in rural areas. Beer (22.6%), Wine (12%), cider (14%) and spirits (7%) are most popular in urban areas. Low income (<P30,000) respondents predominate in the consumption of beer, cider and Chibuku, while mid- to high income respondents favoured wine and spirits.

Males predominate in the consumption of all varieties of homemade alcohol. Amongst males, the three most popular alcoholic beverages are beer, Chibuku and bojalwa jwa Setswana. Bojalwa jwa Setswana is the most popularly consumed alcoholic beverage among those over the age of 50 years (9%). Overall, khadi is the fourth most popular alcoholic beverage in rural areas after beer, Chibuku, and bojalwa jwa Setswana.

Relation between consumption frequency/volume and socioeconomic factors
Factors influencing LPA consumption are gender (recorded), age, education, location (unrecorded) and income (unrecorded). Variation between recorded and unrecorded in terms of education distribution is noticeable as far as recorded alcohol is concerned. On the same token high quantities of unrecorded alcohol are consumed by those with primary education or less.

Rural residents tend to consume higher quantities of unrecorded alcohol compared to residents of other areas, yet that pattern is not discernible within those who drink recorded alcohol. Unrecorded alcohol is also driven by income, with low income earners drinking significantly higher median quantities of pure alcohol.

Males drink significantly more recorded alcohol than do females, but there is no median variation between the genders when it comes to consumption of unrecorded alcohol

While youth and middle aged respondents consume significantly higher quantities of pure alcohol of recorded beverages, middle aged and elderly respondents drink significantly higher quantities of unrecorded alcohol.

Relation between consumption frequency/volume and health factors

There is no evidence from the data that alcohol has negative effect on the health status of alcohol consumers (11%) compared to those who have never consumed alcohol (12%), as evidenced by absence of significant difference in proportions of those reporting negative health status between the two groups. It must be noted however, that health status was self-assessed by respondents and could not be corroborated in the field.

Segmenting current and former drinkers evidences significantly varying proportions in reporting the effect of alcohol on one's health status. Former drinkers tended to report negative health status in larger proportions (16%) compared to current drinkers (7%), and this could explain why they have stopped drinking, whether temporarily or permanently. For some, quitting drinking may have been on medical grounds. The larger proportion of former drinkers are older people compared to younger current drinkers. Age is possibly a confounder in this instance considering that health status deteriorates with age.

Current drinkers report the lowest prevalence for all diseases. Hypertension (11%), CHD (2%), Diabetes (2%) compared to former drinkers at 23%, 5% and 7% respectively. One attributable factor to differences could be reporting differentials among those seeking medical services for diagnosis. It is important to note that gender and age are confounders in all the three diseases, considering that double the proportion of females report hypertension compared to males. There is no evidence of association between depression and consumption status.

Attitudes towards Alcohol Consumption

Current Drinkers

The most persistent concern expressed by respondents was their finances followed by their marriage. Respondents appeared less concerned about effects on their health, social life and work/studies. 18% of respondents admitted to driving while above the legal limit and 33% of these were 'serial' drink-drivers, who transgressed more than 20 times a year.

Most reported outcomes of drinking were positive with respondents stating that they felt happy, had fun, and were friendlier as well as more relaxed.

Former Drinkers

Former drinkers cited positive emotive feelings when they used to dink. Most stated that they had lots of fun, felt happier and were friendlier. The reasons with the highest frequency with regard to drinking motivation were "because of others", "to feel good" and "to be sociable". The most recurring alternative reason for drinking was that respondents were "experimenting".

Most respondents had not limited their drinking, but of the 33% that stated that they did, the most prevalent answer is that they had "seen bad examples of what it does".

Lifetime abstainers

Core motivations for lifetime abstainers against drinking were "seen bad examples of what it does" and "because of religious reasons". The alternative response with the highest frequency was "not interested in drinking alcohol".

Reasons for Drinking Homemade (Non-Commercial) Alcohol

Tradition, price and convenient location were the main drivers for choosing homemade alcohol. The majority of respondents who drank homemade alcohol drank bojalwa jwa Setswana (n=305). Price was driving a factor among Power Shake and khadi drinkers with 100% and 79% respondents respectively stating that price is the reason for their choice.

Alcohol Policy

There was almost universal agreement that alcohol should not be sold near schools, should have warning labels and that the legally acceptable blood alcohol limit should be reduced.

1 Background

1.1 IARD – Alcohol Consumer Survey

The International Alliance for Responsible Drinking (IARD) has conducted alcohol consumer surveys in India, Vietnam, and the Baltics, using a set of beverage specific alcohol quantity-frequency questions that include questions on commercial alcohol and all types of unrecorded alcohol (homemade, counterfeit, contraband, surrogate).

IARD expressed an interest in conducting similar surveys in Africa and identified Botswana as a possible survey location. IARD understood that the drinking environment varies from country to country and region to region, and therefore the survey instruments used in India, Vietnam, and the Baltics were adapted to the Botswana drinking environment. Adaptations did not alter key measurement variables.

1.1.1 Objectives

The key objectives of the survey were to:
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- Determine the frequency and volume of alcohol consumption and the average per capita consumption of all types of alcohol enumerated
- To relate consumption frequency and volume to demographic, socioeconomic and health factors and, where applicable, to attitudes towards alcohol consumption.

2 Methodology

2.1 Overview

The survey consisted of administering a detailed questionnaire to a nationally representative sample of Botswana residents (aged 15 and older) selected through a rigorous household-based sampling methodology. The sample size was sufficiently large to take into account that a large percentage of the population are non-drinkers (the 2014 WHO Global Status Report on Alcohol and Health indicates that 58.5% of Batswana are non-drinkers).

The data collection instrument was an adaptation of the instrument used in the IARD surveys in India, Vietnam, and the Baltics, modified to reflect the Botswana alcohol landscape. The instrument assessed respondents' drinking status (current drinker, former drinker or non-drinker) and estimated consumption by beverage type (commercial, homemade, counterfeit, contraband and surrogate) as well as by variety (e.g. beer, wine, khadi, bojalwa, etc.)

The instrument also gathered key demographic (place of residence, age and gender as well as marital, socioeconomic, employment and health status) and basic household composition data. Rigorous piloting of the data collection instrument was conducted prior to field deployment to ensure that the instrument was valid for Botswana. Official authorisation for the study was acquired from the Ministry of Health (MoH) Human Research Committee (HRC).

Data input was conducted by experienced, graduate data collectors/research assistants (RAs) using tablets and dedicated CAPI software in order to achieve real-time database building and to enhance data security, data checking and RA compliance with the agreed protocols.

Statistical analysis was performed to determine national consumption levels, consumption patterns and preferences, and how these relate to respondent demographics. Detailed survey findings are presented below.

2.2 Sampling

2.2.1 Population

All residents of Botswana aged 15 years and above were eligible[1]. The study sought to segment this population as follows:

- Current alcohol consumers (who have consumed alcohol within the previous 12 months)
- Abstainers:
  - Lifetime abstainers
  - Former drinkers (who have not consumed alcohol in the previous 12 months)

Alcohol consumers were further examined with regard to the frequency and volume of their consumption. Those who drank occasionally, moderately and heavily; and those who were exposed to health risk due to excessive drinking. Stratification by district was essential as some noncommercial alcohol (NCA)[2] varieties, for example, occur only in certain districts. Stratification by gender for balancing male and female respondents was performed.

2.2.2 Sample size determination

The study's primary objective was to establish the proportion of people in Botswana who drink alcohol. The only available information from the 2014 WHO Global Report estimates non-drinkers (lifetime abstainers and those who have not consumed alcohol in the last 12 months) to be 59% of the 15+ population. The 2014 Botswana NCA study (EPS 2014) had grouped Botswana's twenty-six administrative districts into eleven regions (See Table 2). The study showed that there is variation between the eleven districts in terms of per capita consumption of NCA and variety of NCA. To be able to make inference within each region, there needed to be sufficient responses within that region. For a 95% confidence interval and a margin of error within ± 0.045, the sample for each region was n=455.

Table 1: Sample size scenario for different prevalence rates and margins of error

	Prevalence of alcohol abstention			
Margin of error	50	55	60	65
5	384	380	369	350
4.5	474	469	455	432
4	600	594	576	546
3.5	783	776	752	713
3	1067	1056	1024	971

Thus for eleven regions a sample of n=455x11 = 5,005 was needed.

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[1] While the legal drinking age in Botswana is 18 years, the study sought to examine the same parameters as those used in the WHO Global Health Reports, where alcohol consumption is calculated for a population aged 15 and above.

[2] The terms Noncommercial Alcohol (NCA) and Homemade Alcohol are used interchangeably.

2.2.3 Sample

Residents of Botswana aged 15 years and over constitute 67.4% of the entire Botswana population.

Table 2: Estimated Distribution of Botswana Population aged 15 years and older

Region	DISTRICT	All Population	15 years and over	Sample
Tutume	Tutume	150,975	93,604	296
	Boteti	81,467	50,509	159
Mahalapye	Mahalapye	118,875	73,703	455
Palapye	Serowe/Palapye	180,500	119,910	455
Francistown	North East	60,264	36,158	156
	Francistown	98,961	70,262	299
Gaborone	Gaborone	231,592	180,644	455
Mochudi	Kgatleng	91,660	56,829	237
	South East	84,014	59,649	218
Lobatse	Ngwaketse West	13,689	8,213	25
	Ngwaketse/Moshupa	129,247	77,548	232
	Jwaneng	18,008	13,146	39
	Barolong	54,831	32,899	98
	Lobatse	29,007	20,304	61
Kang	Kgalagadi South	30,016	18,310	142
	Kgalagadi North	20,476	12,900	100
	Ghanzi	43,355	27,314	213
Molepolole	Kweneng East	256,752	159,186	383
	Kweneng West	47,797	29,634	72
Maun	Chobe	23,347	14,008	60
	Ngamiland East	90,334	57,814	247
	Ngamiland West	62,050	34,748	148
Selebi- Phikwe	Bobonong	71,936	44,600	255
	Selebi Phikwe	49,411	35,082	200
	Total	2,038,564	1,329,974	5,005

A multi-stage sampling procedure employing a household sampling unit and that uses stratification (by region), clustering (by Enumeration Area) and simple random sampling of household member as respondent was utilised. Thus a randomly selected household would provide one person of 15 years or older for the interview. In the event, 5,222 complete interviews were conducted.

Figure 1: Maps Illustrating Surveyed EAs

The survey regions throughout the country are indicated (right).

The remaining maps illustrate the identification of some of the surveyed EAs (highlighted).

Different colour highlights indicate which survey team conducted the survey in that particular EA.

See Appendix for more detail on team deployment.
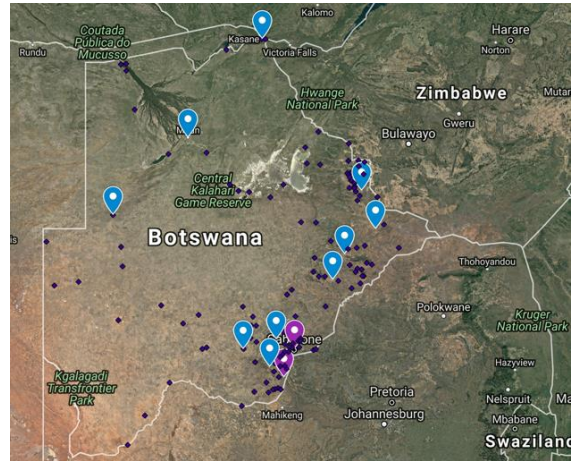
Map of Botswana showing survey regions (blue pins) and surveyed EAs (purple dots)
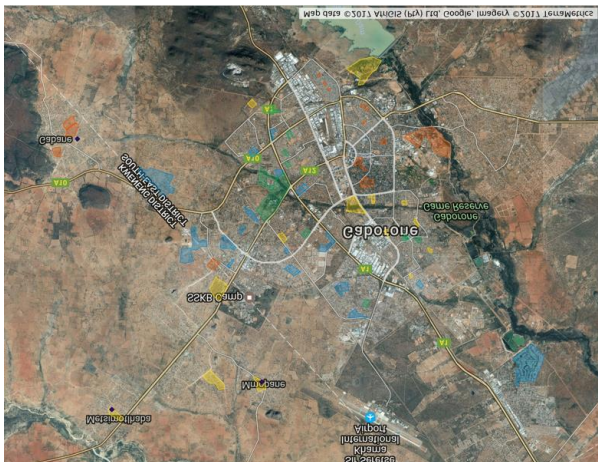
Gaborone

Francistown
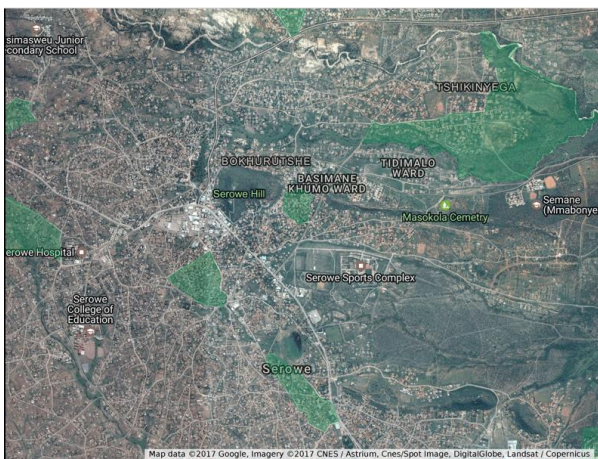
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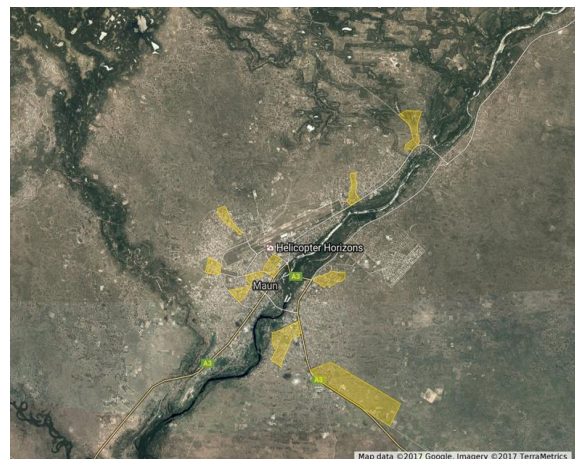
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Figure 2: Sampling Schematic
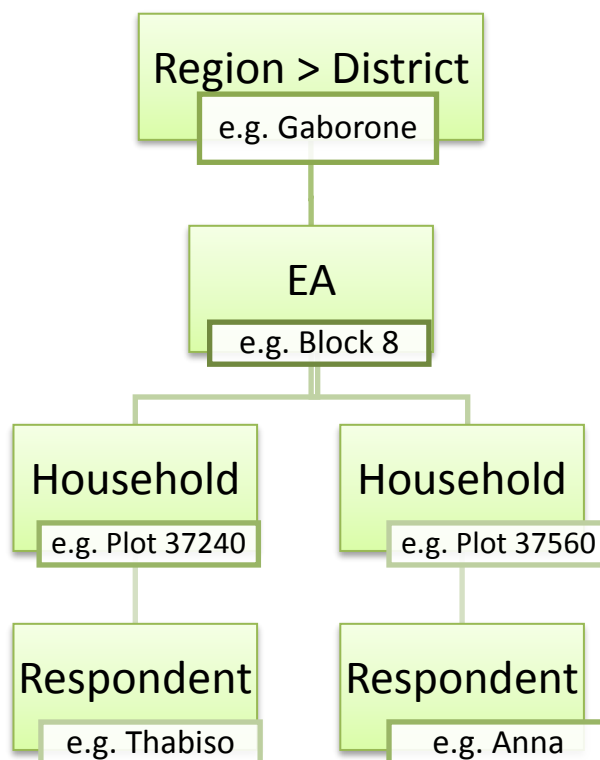
2.3 Data Collection Instrument

All data collection was undertaken using tablets and a bespoke CAPI data collection instrument. The data collection instrument was drafted by EPS in consultation with IARD. The instrument sought to capture Botswana-specific data equivalent to those of the IARD studies in India, Vietnam, and the Baltics. The instrument can be accessed via the following link: https://form.myjotform.com/61441381131545

The data instrument was drafted and refined in English, after which it was translated into Setswana. In the light of prior field experiences, it was anticipated that the majority of respondents would prefer the interview to be conducted in Setswana, or in a mixture of Setswana and English. It was therefore essential that a thorough blind translation and back translation process, augmented by workshopping and pre-testing was undertaken. The instrument was written into JotForm software, adapted for offline or online use, and preloaded on to tablets (one tablet per RA).

Challenges and lessons learnt in implementing the electronic data collection process in remote areas are detailed in the Appendix.

2.3.1 Translation & Back-translation of Instrument

EPS was responsible for translating the instruments into Setswana. The instruments was translated in three phases:

- Preliminary Translation (2 independent translators)
- Back-Translation (3rd independent translator)
- Translation Workshop

2.3.1.1 Preliminary Translation

The two independent experienced language professionals autonomously translated the instruments from English to Setswana and then both versions were discussed with the EPS project team and discrepancies resolved.

2.3.1.2 Back-Translation

A third independent language expert blind back-translated the preliminary Setswana version to English and any remaining discrepancies were resolved by the EPS team.

2.3.1.3 Translation Workshop

As part of the Training Workshop, the instrument translation was examined in detail by all workshop participants, and regional variations in vocabulary were identified. The various alternate expressions, terminologies and colloquialisms that were identified in this process were examined so that all personnel are conversant with, and able to utilise these as required.

The EPS Team Leader supervised the entire translation process, and IARD approved the final translated versions prior to pilot.

2.4 Analysis Methodology

The analysis came about after a thorough cleaning of the data from the field. The analysis entailed the use of SPSS ver. 24 statistical software.

2.4.1 Computation of Volume of Pure Alcohol (VPA)

Assuming X to be quantity of alcohol consumed on a given day and Y be the size and unit of alcohol measure used. On a given day the amount of alcohol consumed by i^{th} respondent is:

$$Q_i = X_i \times Y_i.$$

If the alcohol type has R alcohol content per volume (alc), a daily volume of pure alcohol consumed is

$$PAV = (Q_i \times R)/1000.$$

If we are able to find Z- number of days that the respondent consumes this type of alcohol in a year,

then the volume of pure alcohol consumed by i^{th} respondent in a year is:

$$H_i = Z_i \times PAV$$

Example: The annual consumption for respondent X who drinks 9 cans (340ml) of beer (St. Louis 3.5% ABV) per drinking occasion and who also drinks 1-2 days per week throughout the year (1.5x52=78):

$$H = \frac{9 \times 340 \times 0.034 \times 78}{1000} = 8.35 \text{ litres of pure alcohol in one year}$$

2.4.2 Computation of National Volume of Pure Alcohol (NVPA)

The data is given for all J districts, (j=1,2,…,J). For n_j respondents in the sample randomly selected from j^{th} district, the probability of selecting a respondent is given by

$$\pi_j = \frac{n_j}{N_j}$$

where n_j is the sample size selected from j^{th} district and N_j is the eligible drinking population of district j.

Thus, the total national volume of pure alcohol (NVPA) consumed is

$$\hat{A} = \sum_{j=1}^{J} \sum_{i=1}^{n_j} \frac{H_{ij}}{\pi_j}$$

2.4.3 Computation of Per Capita VPA

The national estimate of total consumption measured as volume of pure alcohol is then divided by the eligible population in the country.

$$Per\,capita\,of\,pure\,alcohol = \frac{\hat{A}}{N_e}$$

where N_e is the population of Botswana residents 15 years and older.

2.4.4 Testing for Association between Variables

- Categorical data is analysed using frequency tables and testing for independence between variables using chi-square test of independence at 5% level of significance.
- The data is highly skewed, hence the use of non-parametric tests using median statistics which is less sensitive to skewness. Thus the Median Test for tests of quality medians between the non-overlapping groups like male/female, rural/urban/semi-urban are performed.
- For two category variables, odds ratios were used to explain the strength of association between variables.

SURVEY FINDINGS

The following tables and graphics highlight key findings of the survey:

3 Demographics

In order to select a respondent from the target household, details of all household members were recorded. A total of 5261 households were enumerated.

3.1 Household Composition

Table 3: Household Size (n=5261)

Household size	n	Percent
1	1092	20.8
2	856	16.3
3	874	16.6
4	806	15.3
5	648	12.3
6	386	7.3
7	258	4.9
8	131	2.5
9	71	1.3
10	56	1.1
11	32	0.6
12	21	0.4
13	14	0.3
14	1	0.0
15	15	0.3
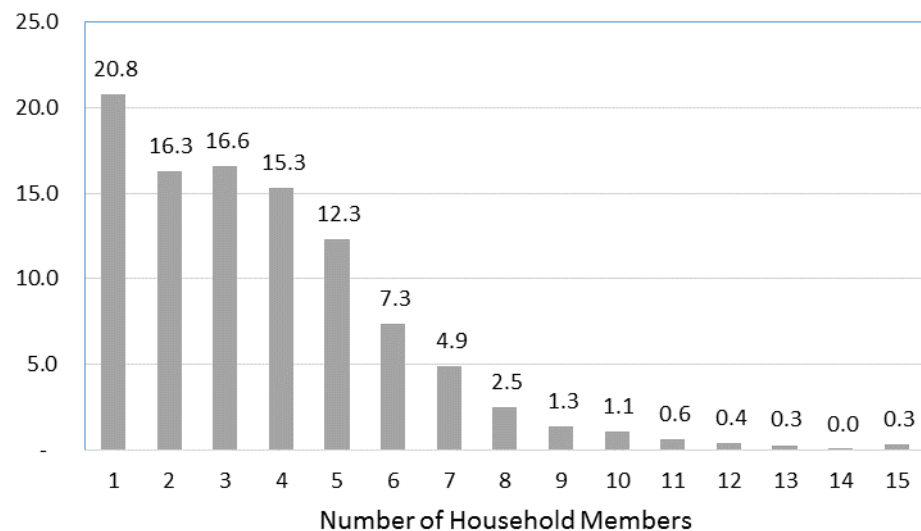
The average household size was 3.66 persons, with 21% being single person households and 0.3% having 15 or more household members.

Table 4: Gender: All household members (n=19271)

Gender	n	Percent
Male	8761	45.5
Female	10510	54.5

19271 individuals were enumerated in the 5261 households surveyed.
Females (54.5%) predominated.
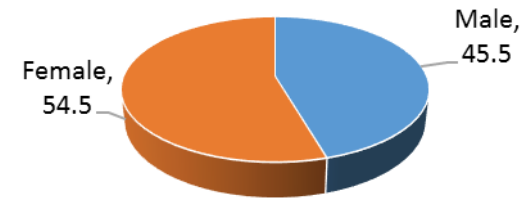
Table 5: Gender: Household Head (n=5237)

Gender	n	Percent
Male	2870	54.8
Female	2367	45.2

The majority of households were male-headed.
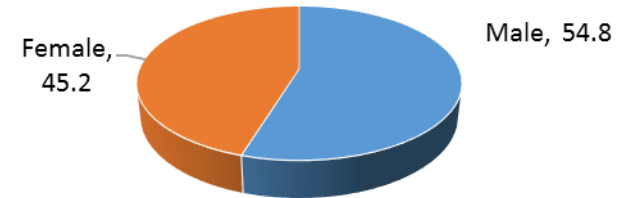
Table 6: Age band: All household members (n=18516)

Age Band	n	Percent
1 year and under	676	3.7
2-5	1835	9.9
6-10	2012	10.9
11-15	1646	8.9
16-20	1572	8.5
21-25	1859	10.0
26-30	1913	10.3
31-35	1713	9.3
36-40	1353	7.3
41-45	935	5.0
46-50	796	4.3
51-55	645	3.5
56-60	660	3.6
61-65	522	2.8
66-70	379	2.0
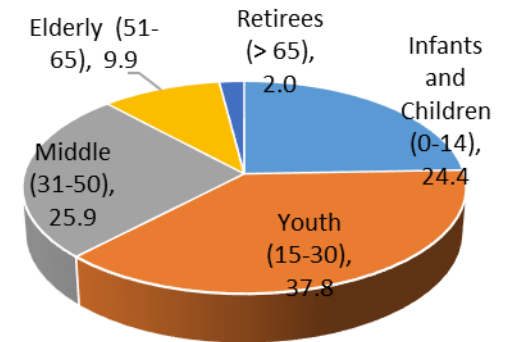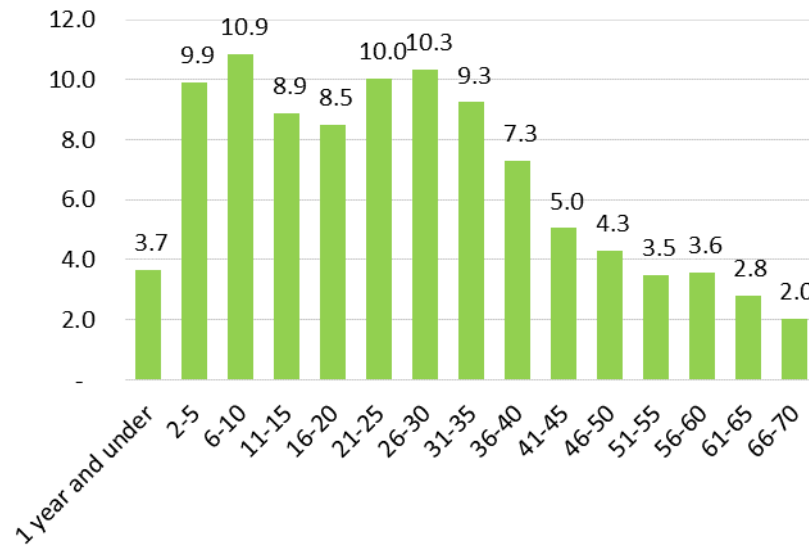
The ages of 755 individuals were either unknown or withheld.

62.2% of household members were aged 30 and under, and 33.3% were 15 or younger. 66.7% were aged 16 or older and were eligible for selection as the survey respondent. One eligible household member aged 15 or older was selected on the next birthday principle, and became the survey respondent for that household.

3.2   Respondent Demographics

5261 potential respondents were identified through the selection methodology, of whom 39 declined to participate in the alcohol consumer survey, leaving a sample size of 5222.

The following tables summarise the gender, age band, marital status, education and employment status of the selected respondents:

Table 7: Respondent gender (n=5222)

Gender	n	Percent
Male	2318	44.4
Female	2904	55.6

The majority of respondents were female.
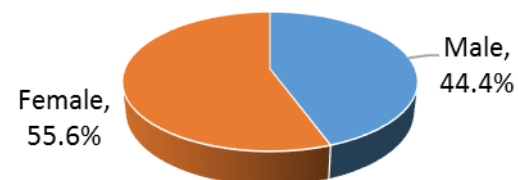
Table 8: Respondent age band (n=5216)

Age		n	Percent
Youth	(15-30)	2032	39.0
Middle	(31-50)	1990	38.2
Elderly	(51-65)	752	14.4
Retirees	(65+)	442	8.5

More than 3 people in every 4 were youth to middle aged (15-50) and constituted 77% of the sample.

3 respondents did not know their age and 3 declined to answer.
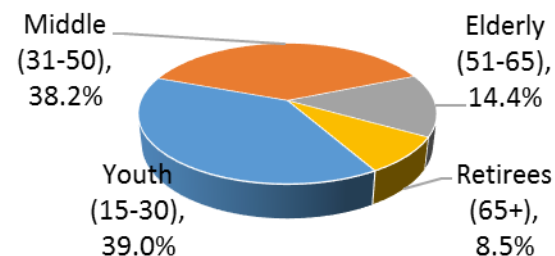
Table 9: Respondent marital status (n=5202)

Marital Status	n	Percent
Single	3065	58.7
Married	915	17.5
Divorced/Separate/Abandoned	119	2.3
Living together	724	13.9
Widowed	379	7.3

The majority of respondents were single. Only 17.5% were married.

20 respondents said they didn't know their marital status and one declined to answer.
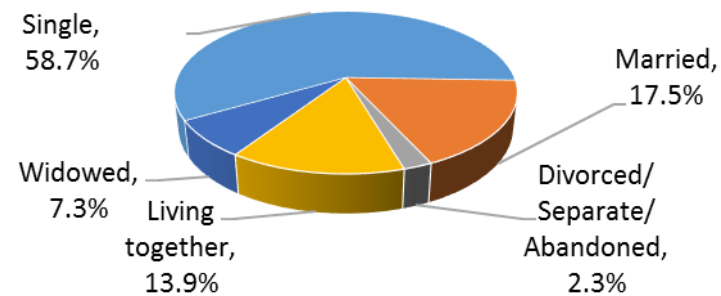
Table 10: Respondent education level (n=5220)

Education	n	Percent
No formal	574	11.0
Primary	1168	22.4
Secondary	2535	48.8
Post-Secondary	943	18.1

67% had secondary education or higher. Only 11% had had no formal education.

One respondent did not know, and one refused.
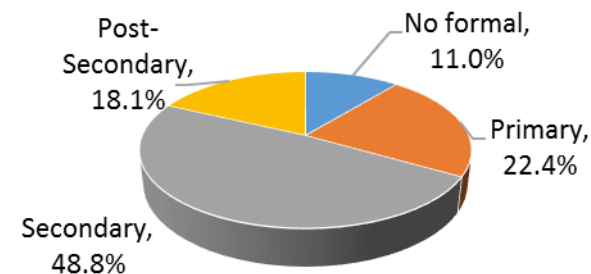
Table 11: Respondent employment status (n=5222)

Employment Status	n	Percent
Employed	1341	25.7
Self-Employed	901	17.3
Student	405	7.8
Unemployed (Govt. Assist)	555	10.6
Unemployed	1817	34.8
Retired	190	3.6
Disabled	14	0.3

35% were unemployed while 11% were unemployed but receiving government assistance. Only 26% were formally employed and 7.8% were full-time students.
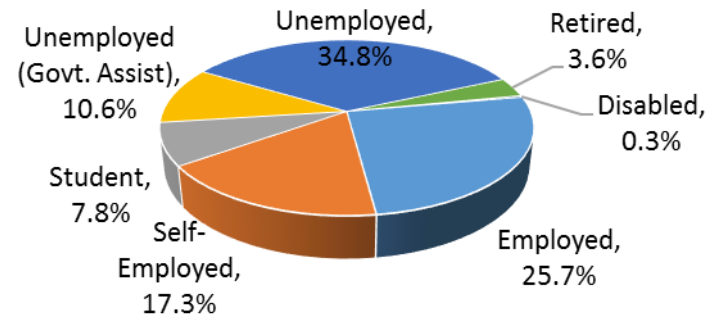
Table 12: Respondent household income (n=4396)

Income	n	Percent
<P30,000	3210	73
30,000-59,000	487	11.1
60,000-149,000	433	9.8
>=150,000	266	6.1

Only 4396 respondents agreed to answer this question. 73% had household incomes below P30,000 p.a. (around USD 3,000). 2044 respondents reported a household income below P10,000 while 266 had an income of P150,000 or higher. In terms of income distribution, this is a highly skewed population.

826 respondents either didn't know or refused to answer the question.

Respondents were stratified by location according to the official Botswana Census definitions for urban, semi urban and rural, with the urban segment subdivided into high-cost, medium-cost, low-cost and Self Help Housing Association (SHHA).
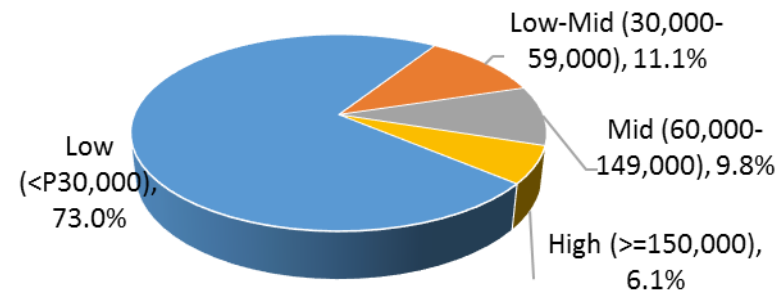
Table 13: Home ownership - respondent's household (n=5222))

	n	Percent
Owned by a household member with mortgage	93	1.8
Owned by a household member free and clear	3006	57.6
Rented for cash	1526	29.2
Occupied without payment of rent	597	11.4

58% of respondents lived in homes owned free and clear by themselves or another household member, and fewer than 2% of homes were owned by a household member with a mortgage.

Table 14: Home ownership by income group (n=4396)

	Owned by household with a mortgage	Owned by household free and clear	Rented for cash	Occupied without payment of rent
<P30,000	47	1991	740	432
30,000-59,000	10	227	215	35
60,000-149,000	11	158	218	46
>=150,000	16	113	109	28

The majority (62%) of low income households (income below P30,000) owned their home free and clear, while 42.5% of high income (above P150,000) did so. 14% of low income households occupied the home without payment of rent.

19% of all households owned their home with a mortgage.
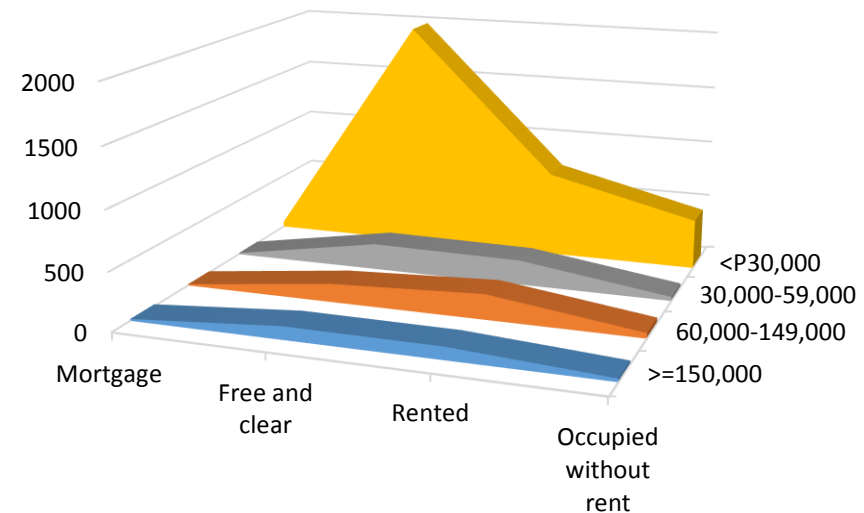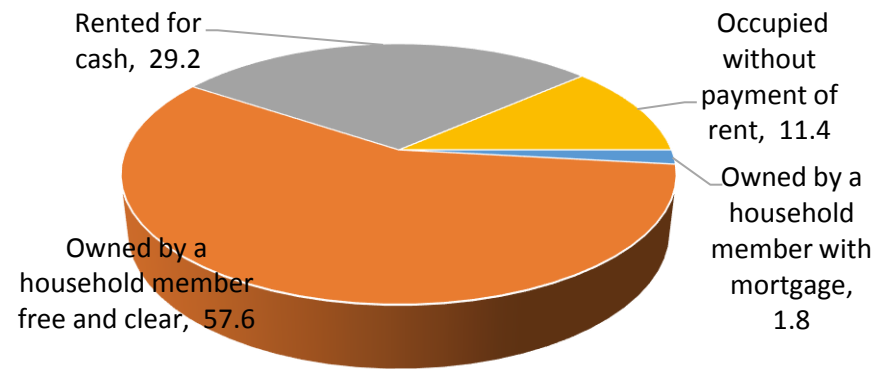
Table 15: Respondent location (n=5222)

Respondent Location	n	Percent
Urban High	161	3.1
Urban Medium	271	5.2
Urban Low	113	2.2
Urban SHHA	546	10.5
Semi urban	2293	43.9
Rural	1838	35.2

79% of respondents resided in semi urban or rural areas. Only 8.4% resided in urban medium or high cost areas. Of urban residents (21% of all respondents), 50% were located in Self Help Housing (SHHA) and 10.4% in low cost areas.
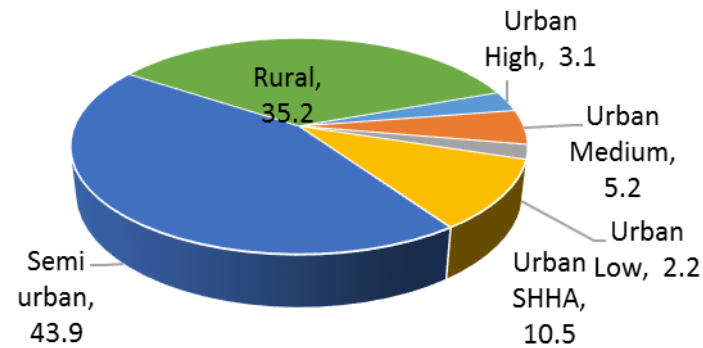
Table 16: Respondent income by location (n=4396)

Income by Location	Rural	Semi urban	Urban
<P30,000	86.2	72.4	50.3
30,000-59,000	7.2	11.8	16.5
60,000-149,000	5.3	10.2	17.3
>=150,000	1.3	5.5	15.8

86% of rural respondents had a household income below P30,000, while only 50% of urban respondents had an income below this threshold.

16% of urban respondents had a household income over P150,000, while only 1.3% of rural respondents had an income above this threshold.

Semi-urban respondents came in between their urban and rural counterparts.
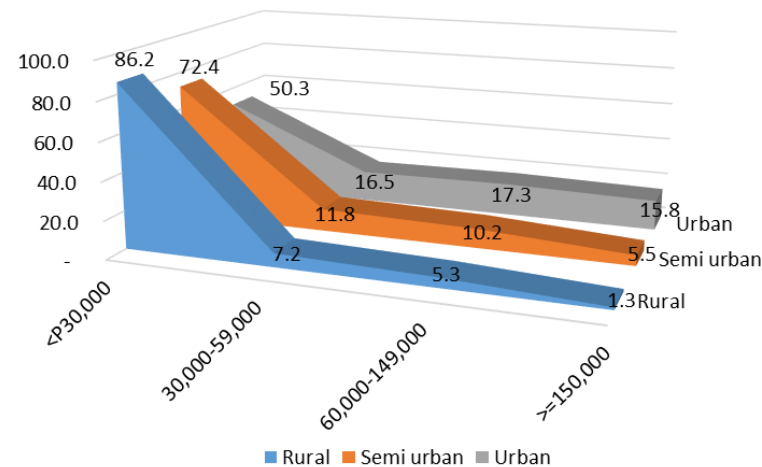
Table 17: Respondent religious affiliation (n=5192)

	n	Percent
Christianity	4155	80.0
Islam	31	0.6
Nonreligious	769	14.8
Agnostic	3	0.1
Atheist	31	0.6
Hinduism	9	0.2
Primal	8	0.2
African Traditional	159	3.1
Sikhism	2	0.0
Rastafarianism	21	0.4
Other	4	0.1

The majority (80%) of respondents declared themselves to be Christian and 15% were nonreligious.

26 respondents didn't know their religious affiliation and 4 declined to answer.
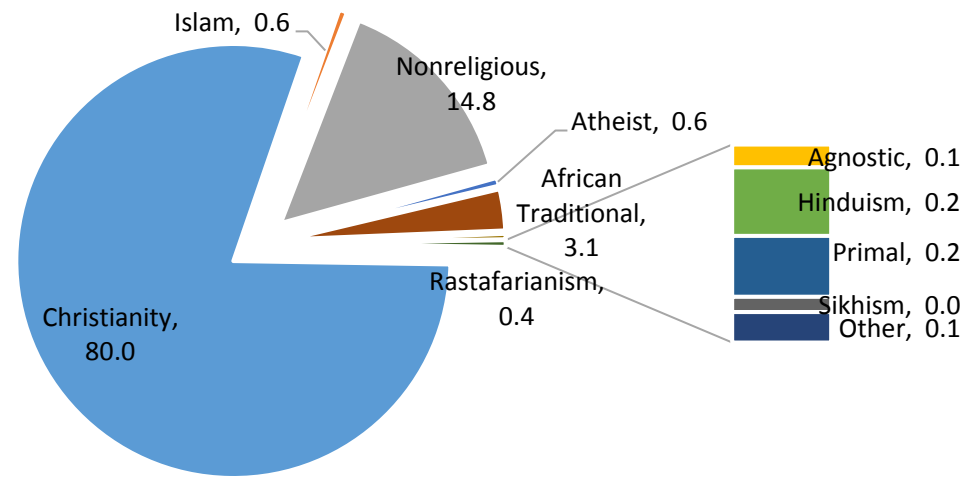
4   Prevalence of Alcohol Consumption

Figure 3: Prevalence of alcohol consumption: schematic

The sample consisted of n=5261 eligible respondents, of whom 5222 agreed to be interviewed.

44% were lifetime abstainers.

The overall prevalence of ever consuming any type of alcoholic beverage was 56%. Of these, 62% were current drinkers (had consumed a drink containing alcohol in the last 12 months) and 38% were former drinkers (had consumed alcohol, but not in the previous 12 months).

The overall prevalence of current drinkers was 35%. Of these, 31% had consumed commercial alcohol and 10% had consumed homemade alcohol in the previous 12 months.

25% and 3% of all respondents exclusively consumed commercial or homemade alcohol, respectively.

6.2% of respondents had consumed both commercial alcohol and homemade alcohol in the previous 12 months.

Fewer than 1% of respondents had consumed counterfeit, contraband and / or surrogate alcohol in the previous 12 months.

4.1 Distribution of Alcohol Consumption Status by Location, Gender and Age

Table 18: Alcohol consumption by location (n=5219)

Location	Current Drinkers (n=1815)	Former Drinkers (n=1122)	Lifetime Abstainers (n=2282)	X²-Value	P-value
	n (%)	n (%)	n (%)		
Urban	476 (38.6%)	245 (19.9%)	513 (41.6%)		
Semi-urban	795 (33.8%)	485 (20.6%)	1070 (45.5%)	17.23	0.002
Rural	544 (33.3%)	392 (24.0%)	699 (42.8%)		

The distribution of alcohol drinking status differs between urban, semi-urban or rural areas. The proportion of current drinkers in urban areas is significantly higher (39%) compared to 34% and 33% in semi-urban and rural areas respectively. A higher proportion of abstainers (46%) are observed among semi-urban respondents compared to those in urban areas (42%). There is association between drinking status and location: chi-square=17.23, (p-value=0.002).
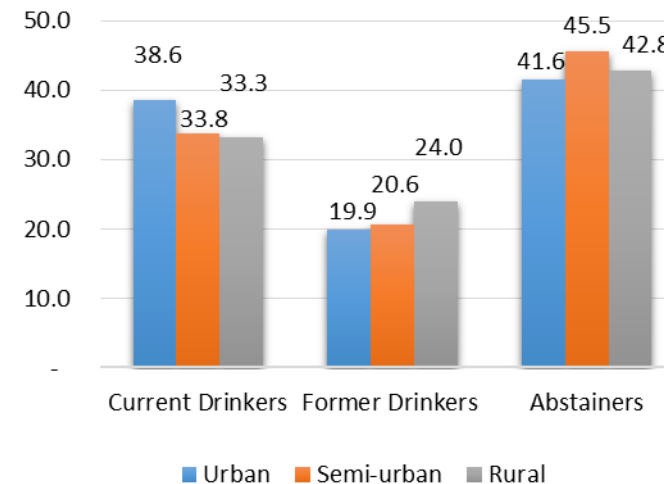
Table 19: Alcohol consumption by gender (n=5222)

Gender	Current Drinkers (n=1815)	Former Drinkers (n=1122)	Lifetime Abstainers (n=2282)	X²-Value	P-value
	n (%)	n (%)	n (%)		
Male	1183 (51%)	477 (21%)	657 (28%)	544.31	< 0.001
Female	632 (22%)	645 (23%)	1625 (56%)		

A higher proportion of males (51%) than females (21%) are current drinkers. Female Former drinkers and lifetime abstainers (79% of all females) outnumber males (49%).
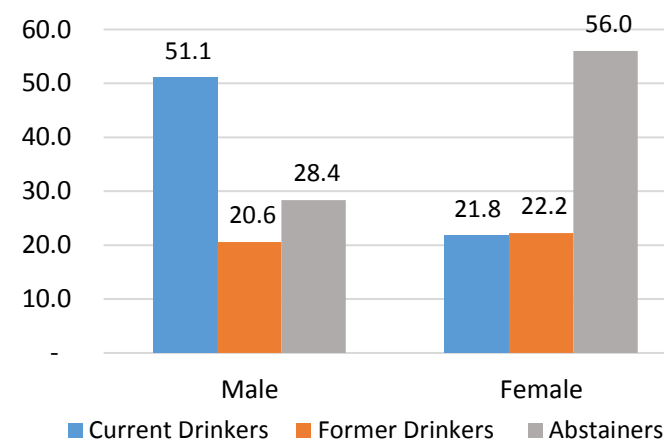
Table 20: Alcohol consumption by age (n=5216)

Age	Current Drinkers (n=1812)	Former Drinkers (n=1120)	Lifetime Abstainers (n=2281)	X²-Value	P-value
	n (%)	n (%)	n (%)		
Youth (15-30)	850 (41.9%)	324 (16.0%)	856 (42.2%)	186.77	<0.001
Middle (31-50)	715 (35.9%)	447 (22.5%)	828 (41.6%)		
Elderly (51-65)	161 (21.4%)	197 (26.2%)	393 (52.3%)		
Retirees (> 65)	86 (19.5%)	152 (34.4%)	204 (46.2%)		

Up to 42% of youth (15-30) are current drinkers and the proportions reduce as age increases, with only 20% of retirees being current drinkers. 3 respondents did not know their age and 3 declined to answer.
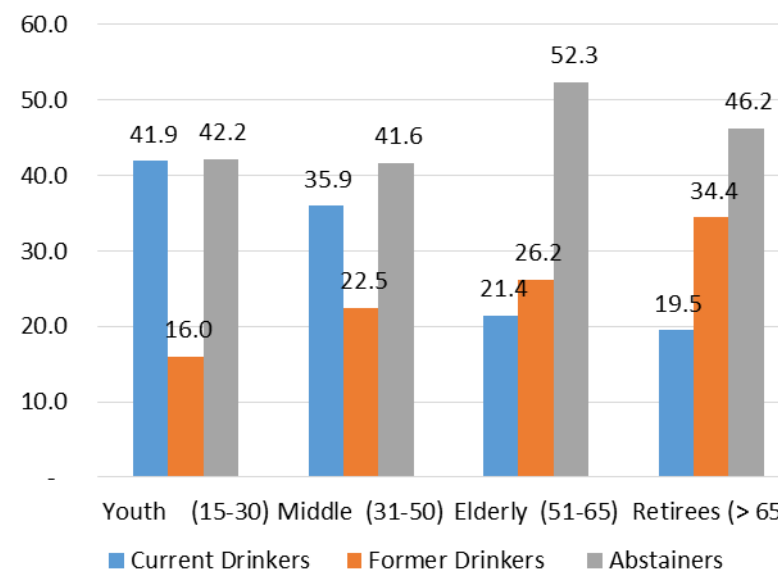
There is a strong association between gender and alcohol consumption status (p-value <0.001). The highest proportion of current drinkers can be characterised as middle-aged males who reside in semi-urban areas while most abstainers tend to be elderly females who reside in rural areas.

Table 21: Age at first drink (n=2270)

Age Band	Male	Female	Total
1 year and under	0	1	1
2-5	0	0	0
6-10	**19**	6	25
11-15	**198**	62	260
16-20	**780**	542	1322
21-25	**397**	357	754
26-30	120	124	244
31-35	42	49	91
36-40	17	17	34
41-45	11	11	22
46-50	3	9	12
51-55	0	1	1
56-60	1	1	2
61-65	1	0	1
66-70	0	1	1
	1589	**1181**	**2770**
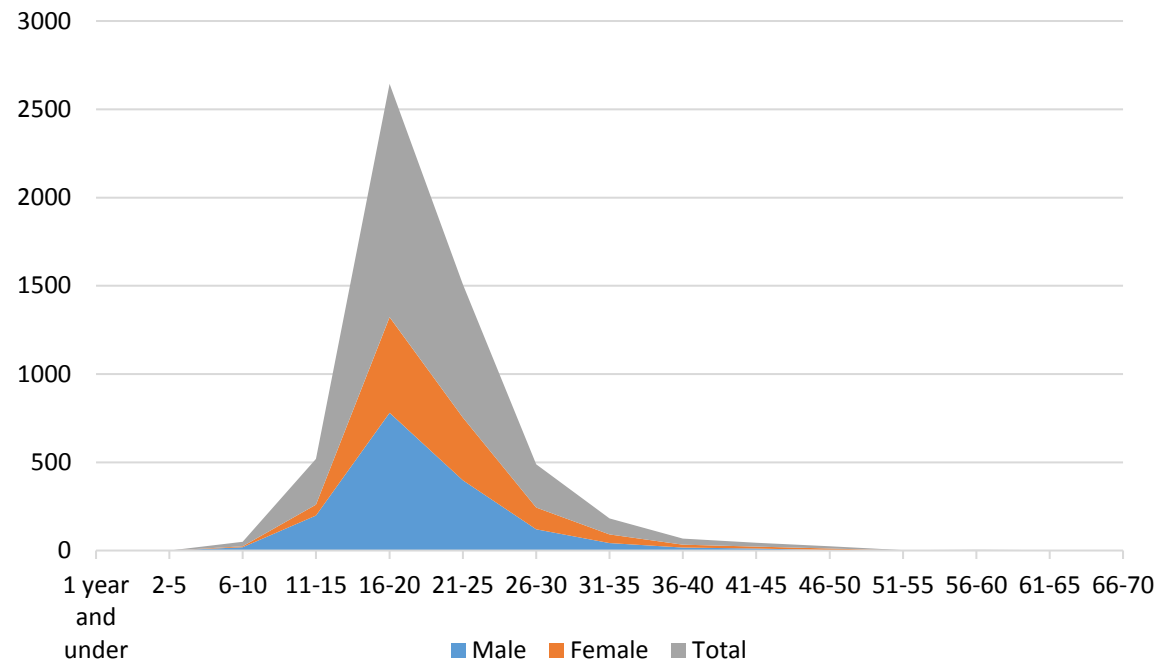
84.3% consumed their first alcoholic drink when aged between 11 and 25 years, and. 94.1% were 30 or younger. The youngest exact age (where known) of first drink was 1 year and the oldest was 66 years. Males began drinking at a younger age than females: more males started drinking between the ages of 6 and 25 than did females.

5 Distribution of Different Beverages

Note: Test for association is not computed because there are overlaps in types of alcohol consumed.

5.1 Beverage Preference: Commercial Varieties

5.1.1 Distribution by Gender, Age, Location and Household Income

Table 22: Beverage preference by gender – total population (n=5222)

Gender	Beer	Wine	Cider	Chibuku	Spirit
Male (n=2317)	37.0	7.6	7.2	15.2	6.4
Female (n=2902)	6.4	5.0	10.7	2.0	1.2

Beer is the most popular commercial variety.

Males drink beer at a ratio of 1 to 6 compared to females.

Cider (11%) is the most popularly consumed commercial alcoholic beverage among females.

Chibuku and spirits are consumed by more males than females.
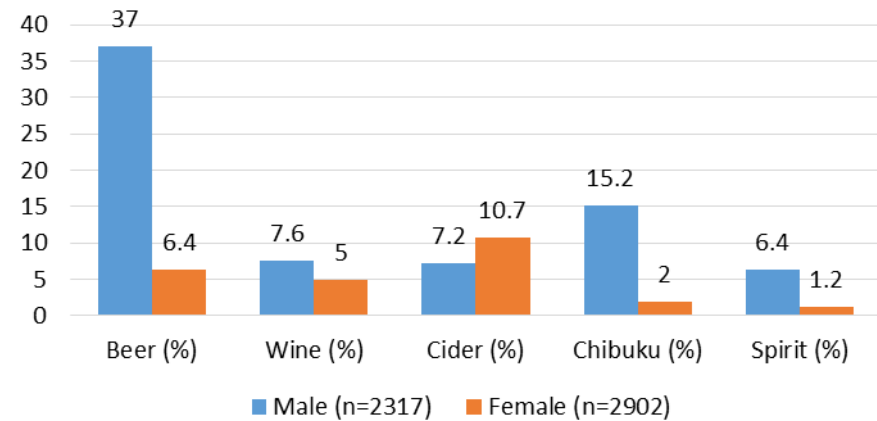
Table 23: Beverage preference by gender – current drinkers (n=1815)

Gender	Beer	Wine	Cider	Chibuku	Spirit
Male (n=1183)	72.4	14.9	14.0	29.8	12.6
Female (n=632)	29.3	22.9	49.4	9.2	5.7

72% of all male current drinkers drink beer, compared to 29% of female current drinkers.

Chibuku is also consumed by a greater percentage of male (30%) than female (9%) current drinkers.

A greater percentage of female current drinkers drink cider (49%) and wine (23%) than male current drinkers (14% and 15% respectively).
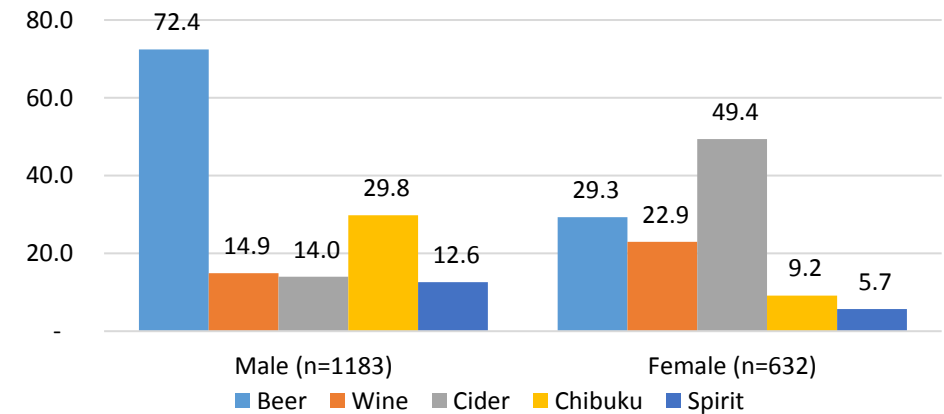
Table 24: Beverage preference by age – total population (n=5222)

Age	Beer	Wine	Cider	Chibuku	Spirit
15-30 (n=2030)	25.8	9.0	15.9	5.9	5.6
31-50 (n=1990)	22	5.6	7.0	10.4	3.1
51-65 (n=751)	8.4	2.7	1.4	7.4	1.1
> 65 (n=442)	3.6	0.7	0.5	5.8	0.5

Among those aged 15 and older (eligible study sample, n=5222), 20% consumed beer, 6% wine, 9% cider, 8% Chibuku, and 4% consumed spirits.

Cider was predominantly consumed by respondents under 30, while youth were the lowest consumers of Chibuku.

Beer is the most popular commercial alcoholic beverage among all groups except females and retirees.
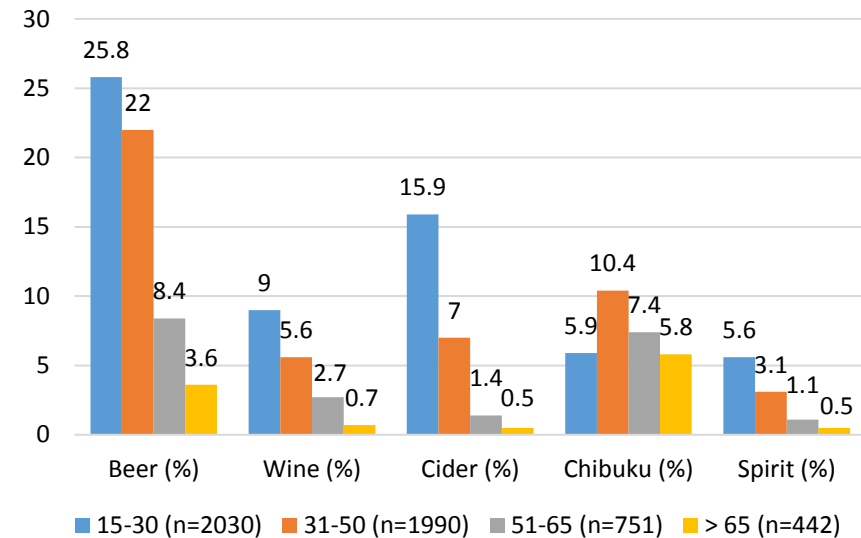
Table 25: Beverage preference by age – current drinkers (n=1812)

Age	Beer	Wine	Cider	Chibuku	Spirit
15-30 (n=850)	61.6	21.9	38.1	14.1	13.4
31-50 (n=715)	61.3	15.5	19.6	29.1	8.5
51-65 (n=161)	39.1	12.4	6.8	34.8	5.0
> 65 (n=86)	18.6	3.5	2.3	30.2	2.3

Chibuku stood out as being chiefly consumed by older current drinkers, with 35% of 51-65 year olds and 30% of over 65 year old current drinkers consuming Chibuku.

Beer was widely consumed by all age groups, while cider was consumed by 38% of current drinkers under 30.

Consumption of wine declined with age.
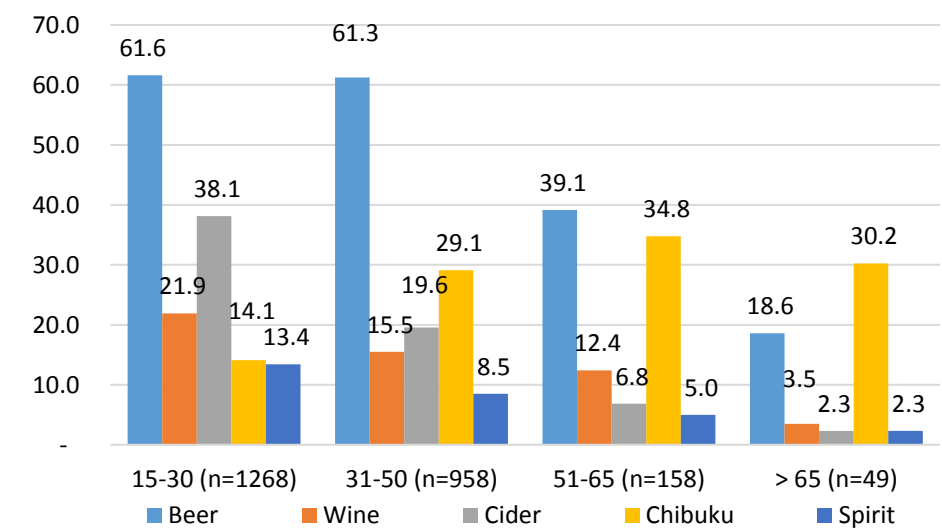
Table 26: Beverage preference by location – total population (n=5222)

Location	Beer	Wine	Cider	Chibuku	Spirit
Urban (n=1254)	22.6	12.1	13.5	4.4	7.0
Semi-urban (n=2350)	20.6	5.0	8.3	7.1	2.9
Rural (n=1635)	16.5	3,0	6.8	11.4	1.7

Both wine and spirits are consumed by a relatively small percentage of rural dwellers (3% and 2% respectively).

Beer (23%), Wine (12%), cider (14%) and spirits (7%) are most popular in urban areas, while Chibuku is more popular than other varieties in rural areas
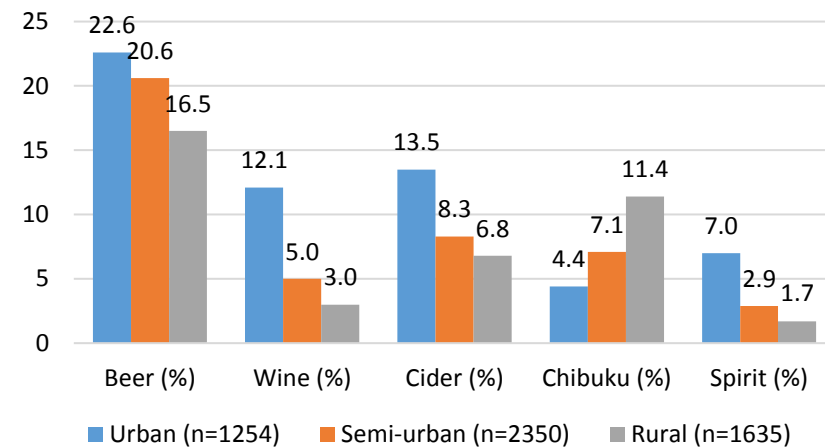
Table 27: Beverage preference by location – current drinkers (n=1815)

Location	Beer	Wine	Cider	Chibuku	Spirit
Urban (n=434)	59.7	34.3	35.7	11.3	19.1
Semi-urban (n=778)	60.9	15.0	25.1	21.0	8.9
Rural (n=603)	51.2	9.1	21.2	33.0	5.5

Spirits were consumed by 19% of urban current drinkers. Only 5.5% of rural current drinkers (n=603) drank spirits.

Chibuku consumption was dominated by rural current drinkers (33%) and was least consumed in urban areas.

Beer was the most commonly consumed beverage for all locations.
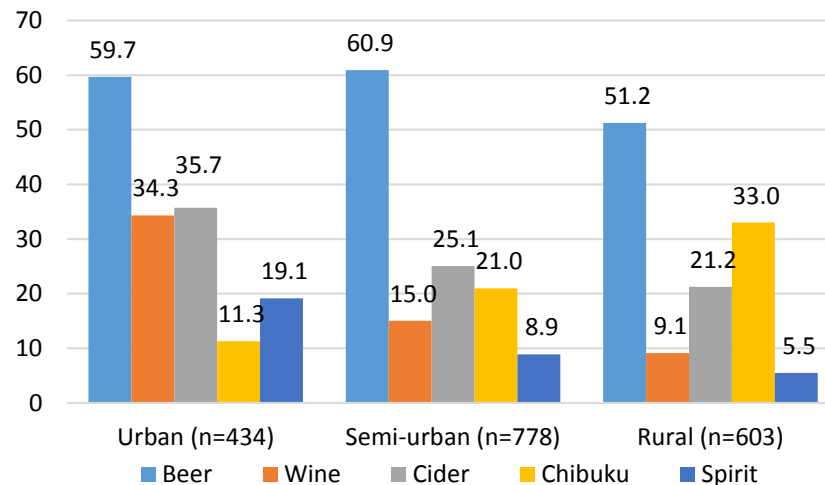
Table 28: Beverage Preference by Income – total population (n=5222)

Income	Beer	Wine	Cider	Chibuku	Spirit
<P30,000 (n=1273)	26.9	6.3	11.9	15.1	2.7
30,000-59,000 (n=273)	6.3	2.1	2.5	1.4	1.2
60,000-149,000 (n=249)	5.3	2.3	2.3	1.1	1.3
>=150,000 (n=230)	4.6	2.3	2.1	0.2	2.2

Low income (<P30,000) respondents predominated in the consumption of beer, cider and Chibuku, while mid- to high income respondents favoured wine and spirits.
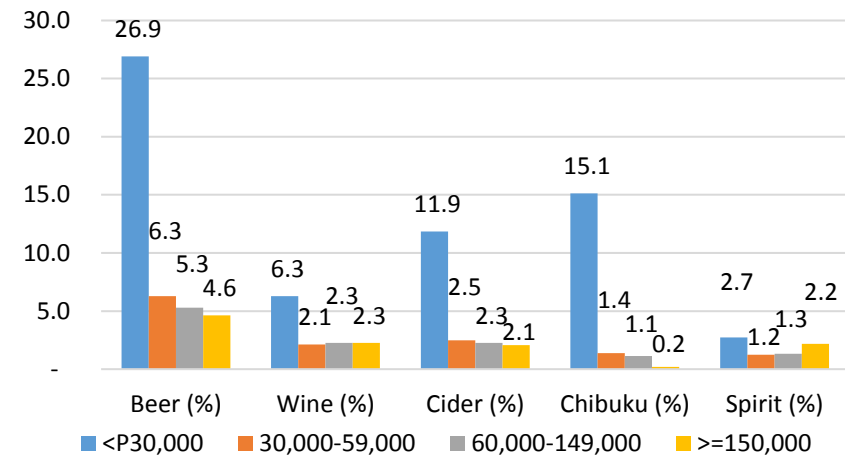
Table 29: Beverage Preference by Income – current drinkers (n=1524)

Income	Beer	Wine	Cider	Chibuku	Spirit
<P30,000 (n=1033)	52.8	12.3	5.7	2.2	1.9
30,000-59,000 (n=186)	68.3	23.1	9.1	0.5	4.8
60,000-149,000 (n=167)	64.1	27.5	6.6	3.6	6.0
>=150,000 (n=138)	68.1	33.3	12.3	0.7	10.1

Beer was the preferred drink among all income groups.

Preference for spirits and wine increased in relation to income.
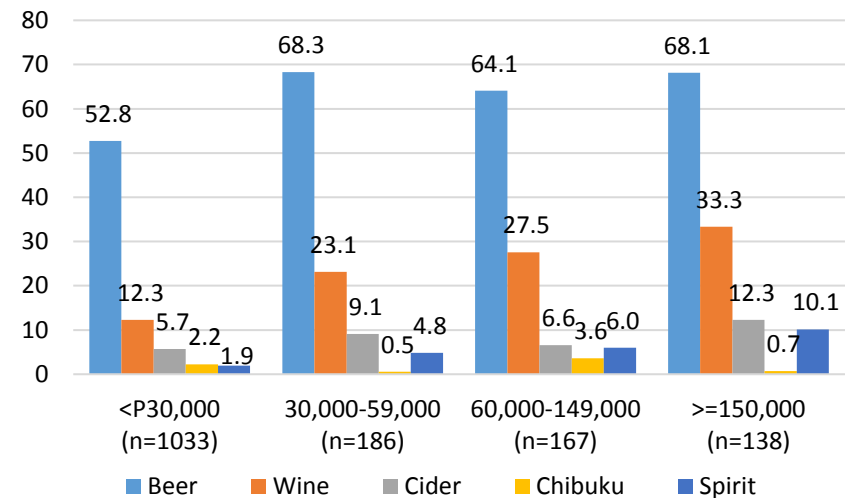
5.2   Beverage Preference: Homemade Varieties

Overall the most widely consumed homemade varieties were bojalwa jwa Setswana (6%), khadi (4%) and mokuru (0.6%) in the last 12 months. Consumption of all other varieties combined accounted for 1% of all types of alcohol consumed.

Table 30: Homemade beverage preference by gender – total population (n=5219)

Gender	Khadi	Bojalwa	Mokuru	All other Varieties
Male (n=2317)	5.7	9.4	1.1	1.7
Female (n=2902)	2.4	3.0	0.3	0.2

Bojalwa jwa Setswana is the most popular homemade variety. Males predominate in the consumption of all varieties of homemade alcohol.
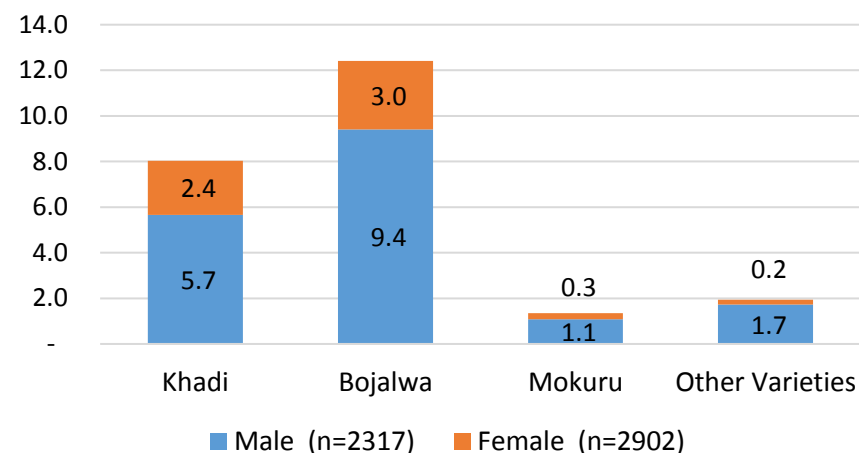
Table 31: Homemade beverage preference by gender – current drinkers (n=1815)

Gender	Khadi	Bojalwa	Mokuru	All other Varieties
Male (n=1183)	11.1	18.4	2.1	3.2
Female (n=632)	10.9	13.8	1.3	0.9

Bojalwa jwa Setswana was the most widely consumed homemade variety among both genders.

Amongst males, the three most popular alcoholic beverages are beer, Chibuku and bojalwa jwa Setswana.
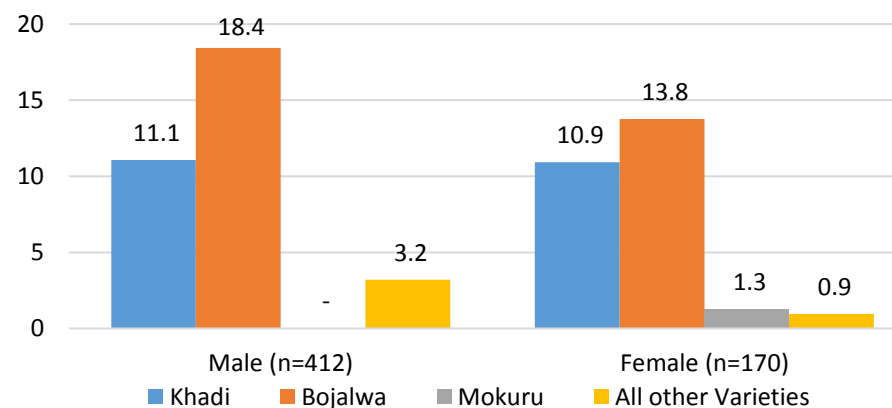
Table 32: Homemade beverage preference by age – total population (n=4771)

Age	Khadi	Bojalwa	Mokuru
15-30 (n=2030)	2.2	3.3	0.1
31-50 (n=1990)	5.1	5.7	1.0
51-65 (n=751)	4.9	8.9	0.8

Bojalwa jwa Setswana is the most popularly consumed homemade alcoholic beverage among those over the age of 50 years (9%).
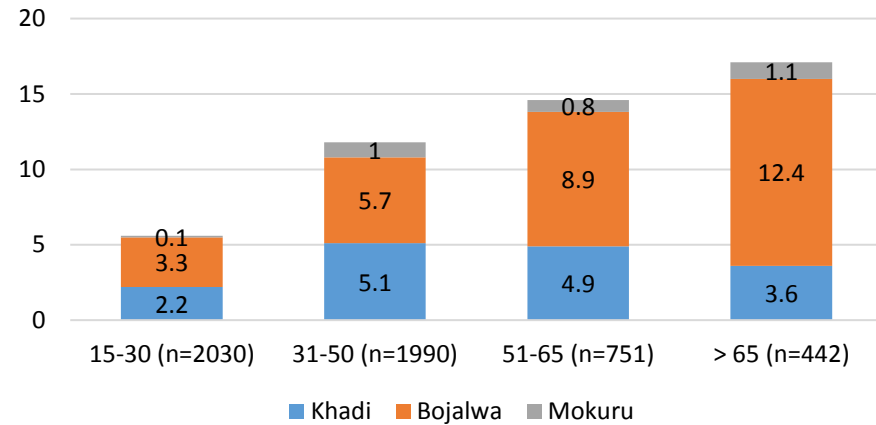
Table 33: Homemade beverage preference by age - current drinkers (n=1812)

Age	Khadi	Bojalwa	Mokuru	All other Varieties
15-30 (n=850)	5.4	8.0	0.2	0.9
31-50 (n=715)	14.1	15.9	2.1	4.1
51-65 (n=161)	23.0	41.6	1.9	3.1
> 65 (n=86)	18.6	64.0	1.2	2.3
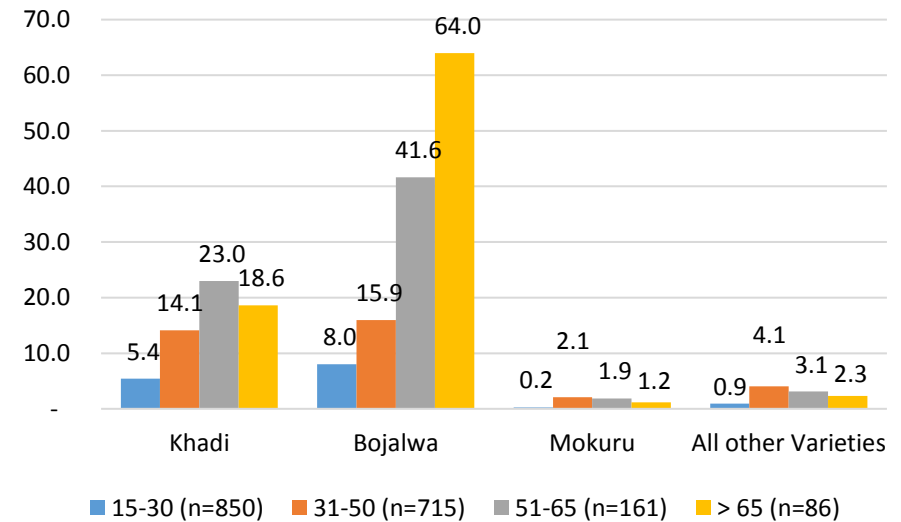
Table 34: Homemade beverage preference by location - total population (n=5222)

Location	Khadi	Bojalwa	Mokuru
Urban (n=1254)	1.3	2.6	0.1
Semi-urban (n=2350)	2.1	5.4	0.4
Rural (n=1635)	8.3	8.9	1.3

Overall, khadi is the fourth most popular alcoholic beverage in rural areas after beer, Chibuku, and bojalwa jwa Setswana.
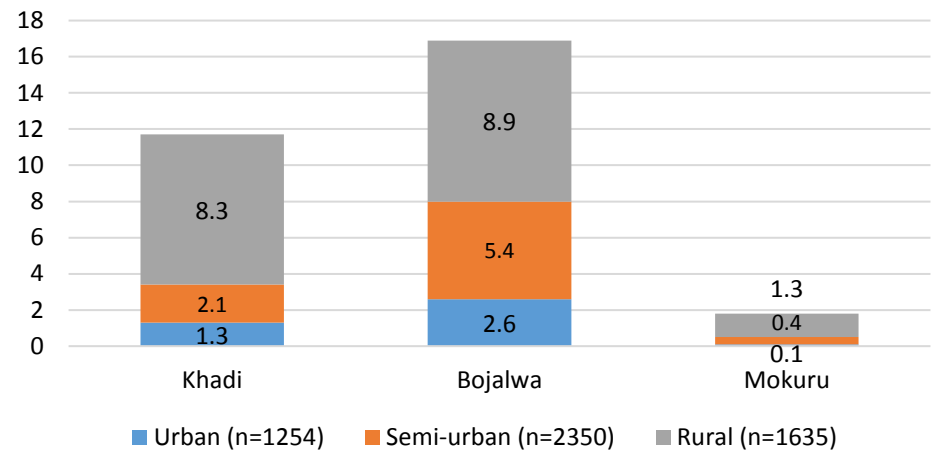
Table 35: Homemade beverage preference by location - current drinkers (n=1815)

Location	Khadi	Bojalwa	Mokuru	All other Varieties
Urban (n=434)	3.5	6.5	-	0.2
Semi-urban (n=778)	5.5	16.1	0.5	2.1
Rural (n=603)	23.5	25.2	2.8	4.5

Khadi consumption was high in all areas than any other variety, while khadi consumption was low in urban but high in rural areas.
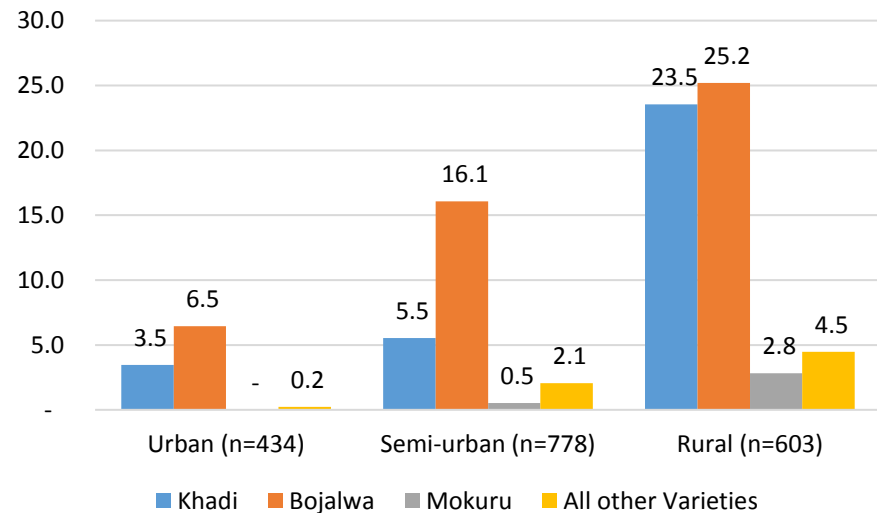
6   Estimating Volume of Pure Alcohol Consumed

Counterfeit and Surrogate alcohol volumes are negligible and are not included in the following computations, which are limited to Commercial, Contraband and Homemade beverages only.

Table 36: Estimated LPA of Recorded and Unrecorded beverages

Variable	Category	Recorded (LPA)			Unrecorded (LPA)		
		n	Median	P-value	n	Median	P-value*
Gender	Male	1077	**8.7**	< 0.001	347	2.2	0.547
	Female	558	1.7		141	2.6	
Age	Youth	831	5.2	<0.001	112	0.9	0.011
	Middle Age	647	6.6		218	4.1	
	Elderly	115	2.9		91	3.1	
	Retirees	39	2.1		66	1.6	
Education	No formal	85	2.3	0.001	124	1.7	<0.001
	Primary	222	3.4		160	**7.5**	
	Secondary	913	5.9		177	1.3	
	Post Sec	414	6.4		27	0.2	
Location	Urban	472	4.4	0.215	47	0.2	<0.001
	Semi-Urban	731	6.2		182	1.6	
	Rural	432	4.7		259	4.4	
Income	<P30,000	883	5.3	0.084	389	3.2	0.010
	30,000-59,000	178	**8.8**		29	0.9	
	60,000-149,000	164	5.7		14	0.6	
	>=150,000	137	**8.7**		13	0.3	
	Total	**1624**	**5.4**		**488**	**2.3**	

Variation between recorded and unrecorded in terms of education distribution is noticeable as far as recorded alcohol is concerned. On the same token high quantities of unrecorded alcohol are consumed by those with primary education or less.

Rural residents tend to consume higher quantities of unrecorded alcohol compared to residents of other areas, yet that pattern is not discernible within those who drink recorded alcohol. Unrecorded alcohol is also driven by income, with low income earners drinking significantly higher median quantities of pure alcohol:

- 5.4 LPA of recorded alcohol
- 2.3 LPA of homemade
- 0.5 LPA of contraband alcohol

Males drink significantly more recorded alcohol than do females, but there is no median variation between the genders when it comes to consumption of unrecorded alcohol.

While youth and middle aged respondents consume significantly higher quantities of pure alcohol of recorded beverages, middle aged and elderly respondents drink significantly higher quantities of unrecorded alcohol.

Factors influencing LPA consumption are gender (recorded), age, education, location (unrecorded) and income (unrecorded).

The p-values are based on Kruskal-Wallis multiple test for equality in medians

Table 37: Estimated Total litres of pure alcohol: Recorded, Unrecorded and Combined

Variable	Category	Recorded (LPA)		Homemade		Contra		ALL
		n	Total	n	Total	n	Total	Total
Gender	Male	1077	5,083,346	356	1,488,897	38	47,031	6,619,273
	Female	558	1,060,369	149	276,5694	10	2,801	1,339,864
Age	Youth	831	2,735,926	115	238,751	32	7,133	2,981,809
	Middle Age	647	2,853,646	227	1,144,485	16	42,699	4,040,831
	Elderly	115	460,458	93	298,836	0	0	759,294
	Retirees	39	**85,613**	**69**	**82,671**	0	0	168,284
Education	No formal	85	**290,378**	**128**	**518,191**	0	0	808,569
	Primary	222	902,569	164	677,679	1	173	1,580,421
	Secondary	913	3,422,046	185	514,358	14	2,309	3,938,713
	Post Sec	414	1,526,592	28	55,362	33	47,350	1,629,304
Location	Urban	472	1,719,110	47	361,801	27	29,003	1,786,294
	Semi-Urban	731	2,854,764	188	441,279	18	20,450	3,316,493
	Rural	432	**1,569,841**	**270**	**1,286,131**	3	378	2,856,351
Income	<P30,000	883	3,415,650	401	1,547,433	16	4,607	4,967,690
	30,000-59,000	178	786,825	31	101,545	6	977	889,347
	60,000-149,000	164	547,166	14	16,333	4	779	564,278
	>=150,000	137	600,285	13	3,034	17	42,888	646,207
	Total	**1635**	**6,143,715**	**488**	**1,765,590**	**48**	**49,832**	**7,959,137**

An estimated 7,959,137 litres of pure alcohol (LPA) per year is consumed in Botswana. The estimated median is 8.2 LPA per capita per year.

An estimated total of 1,815,422 LPA from unrecorded alcohol is produced annually, which would constitute approximately 23% of all alcohol consumed in Botswana, while recorded alcohol, with an estimated 6,143,715 LPA, constitutes 77% to the national annual total.

Based on combined LPA, retirees drink equal share of both alcohol types while people with no formal education drink more of unrecorded (64%) and only 36% recorded alcohol

Similarly people who reside in rural areas drink alcohol in the proportion of 55% recorded against 45% unrecorded alcohol.

Males consume 83% of all alcohol in Botswana. Low income (< P2,500 p/m) earners drink 63% of all alcohol consumed in Botswana, almost one third of which is unrecorded alcohol.

6.1 Total Volume of Pure Alcohol by Commercial Beverage Variety

Table 38: BEER: Estimated Median and Total consumption (LPA)

Variable	Category	n	Median	Total	P-Value
Income	1 <P30,000	540	**3.63**	1,616,707.60	<0.001
	2 30,000-60000	127	7.08	509,832.37	
	3 60001-150,000	107	8.78	386,264.97	
	4 >150,000	93	9.95	430,382.16	
	Total	**867**	**6.19**	**2,943,187.10**	
Education	1 No Formal	40	1.77	66,207.47	<0.001
	2 Primary	136	1.98	336,094.16	
	3 Secondary	605	6.19	1,973,585.72	
	4 Post Sec	254	9.44	1,060,691.32	
	Total	**1035**	**6.08**	**3436578.67**	
Location	1 URBAN	282	6.19	1,068,558.32	0.001
	2 SEMI URBAN	486	6.60	1,705,188.11	
	3 RURAL	267	3.38	662,832.24	
	Total	**1035**	**6.08**	**3,436,578.67**	
Gender	1 Male	852	6.19	3,003,644.19	<0.001
	2 Female	183	**3.38**	432,934.48	
	Total	**1035**	**6.08**	**3,436,578.67**	
Age	1 15-30	521	6.19	1,713,193.61	<0.001
	2 31-50	436	6.19	1,508,911.98	
	3 51-65	61	**3.38**	205,438.88	
	4 > 65	16	**1.35**	8,167.89	
	Total	**1034**	**6.19**	**3,435,712.36**	

Contraband

All	All	10	0.30	9,178.66	

Median beer consumed is 6.19 LPA. This is the largest source of pure alcohol drunk among all commercial beverages. Factors driving levels of consumption are: age, gender, income, education and location.

- Males consume significantly higher quantities of pure alcohol from beer than females.
- Urbanization plays a role, with people residing in those areas drinking more beer than rural respondents.
- Heavy drinking is linked to high income and high education.
- Any intervention measures should therefore address these sectors of society.

- Contraband alcohol contributes a negligible amount to all alcohol consumed.

Table 39: WINE: Estimated Median and Total consumption (LPA)

Variable	Category	n	Median	Total	P-value
Income	1 <P30,000	190	.56	71,450.41	0.534
	2 30,000-60000	40	.76	47,972.06	
	3 60001-150,000	46	.56	13,856.58	
	4 >150,000	47	.79	36,098.91	
	Missing	57	.23	8,261.54	
	Total	309	.56	177,369.56	
Location	1 URBAN	149	.42	91,586.95	0.016
	2 SEMI URBAN	114	.79	70,009.27	
	3 RURAL	46	**.26**	15,773.34	
	Total	309	.56	177,655.85	
Gender	1 Male	170	.56	92,369.54	0.710
	2 Female	136	.56	85,170.47	
	Total	309	.56	177,369.56	
Age	1 15-30	178	.43	99,136.10	0.344
	2 31-50	109	.79	66,244.07	
	3 51-65	20	.58	11,946.68	
	4 > 65	**2**	**.12**	42.72	
	Total	309	.56	177,655.85	
Education	1 No Formal	**3**	**.12**	208.04	0.148
	2 Primary	18	.23	2,949.79	
	3 Secondary	148	.42	81,753.52	
	4 Post Sec	140	.79	92,458.20	

Contraband					
All	All	9	0.45	11,831.20	
	Total			**189,487.05**	

The median of wine consumed is lowest (0.56 LPA) among all commercial beverages. The only variable driving quantities of wine consumed is location (p-value=0.016). Rural current drinkers consume significantly less wine than those in urban and semi-urban areas. The largest quantities of pure alcohol in wine are consumed by urban dwellers even though semi-urban dwellers have higher median per capita.

Table 40: CIDER: Estimated Median and Total consumption (LPA)

Variable	Category	n	Sum	Median	P-value
Income	1 <P30,000	239	379,649.51	1.74	
	2 30,000-60000	50	91,708.56	3.37	0.053
	3 60001-150,000	46	59,227.85	1.18	
	4 >150,000	42	67,940.65	1.35	
	Total	377	598,526.58	1.74	
Education	1 No Formal	8	6,349.59	1.23	
	2 Primary	33	110,623.07	0.52	0.121
	3 Secondary	302	383,073.17	1.62	
	4 Post Sec	132	195,828.29	1.84	
	Missing	1	2,218.93	-	
	Total	476	698,093.05	1.68	
Location	URBAN	170	28,868.08	1.74	
	SEMI URBAN	195	272,097.09	1.62	0.292
	RURAL	111	142,127.88	0.95	
	Total	476	698,093.05	1.68	
Gender	Male	166	275,097.12	1.84	
	Female	310	422,995.93	1.54	0.233
	Total	476	698,093.05	1.68	
Age	1 15-30	325	387,666.42	1.74	
	2 31-50	137	300,110.41	1.59	0.289
	3 51-65	11	2,871.00	0.93	
	4 > 65	2	568.36	0.07	
	Total	475	691,216.19	1.68	

None of the five factor under investigation influence quantities of pure alcohol in cider consumed. Even though this type of beverage is associated with women, the few males who drink it on average drink similar quantities of pure alcohol from this source as do their female counterparts.

Table 41: CHIBUKU: Estimated Median and Total consumption (LPA)

Variable	Category	n	Median	Sum	P-value
Income	1 <P30,000	305	5.85	1,323,710.98	0.026
	2 30,000-60000	28	10.73	120,870.92	
	3 60001-150,000	23	4.13	72,370.11	
	4 >150,000	4	**1.17**	3,922.69	
	Total	360	5.85	1,520,874.70	
Education	1 No Formal	61	**2.25**	215,747.31	0.053
	2 Primary	113	4.50	452,153.71	
	3 Secondary	215	5.85	939,896.74	
	4 Post Sec	20	5.85	83,951.61	
	Total	409	5.85	1,691,749.37	
Location	1 URBAN	56	5.85	190,796.32	0.526
	2 SEMI URBAN	167	5.85	759,605.18	
	3 RURAL	186	5.85	741,347.87	
	Total	409	**5.85**	1,691,749.37	
Gender	1 Male	352	5.85	1,579,370.84	0.005
	2 Female	57	**2.25**	112,378.52	
	Total	409	5.85	1,691,749.37	
Age	1 15-30	120	5.85	492,524.86	0.004
	2 31-50	207	5.85	899,191.65	
	3 51-65	55	4.50	223,912.36	
	4 > 65	26	**3.90**	75,528.19	
	Total	408	5.85	1,691,157.06	

The second largest median litres of pure alcohol consumed is in Chibuku (5.85 LPA) hence second largest total quantities among the commercial beverages. Chibuku is driven by gender, age and income of the drinker. Males (5.85 LPA) than females (2.25 LPA) tend to drink more pure alcohol of Chibuku. Meanwhile young people of ages 15-50 years compare to older 51 or more drink more Chibuku in terms of litres of pure alcohol. There is evidence of excessive alcohol consumption among those earning P30,000-P60,000 with an median annual consumption of 10.73 LPA.

Table 42: SPIRITS: Estimated Median and Total consumption (LPA)

Variable	Category	n	Median	Total	P-value
Income	<P30,000	53	.28	15,450.70	
	30,000-60000	24	.95	15,309.39	0.131
	60,001-150,000	27	.72	11,277.08	
	>150,000	41	.72	63,866.55	
	Total	145	.72	105903.71	
Education	No Formal*	1	.84	213.96	
	Primary	7	.51	1,087.39	
	Secondary	85	.39	36,287.43	0.040
	Post Sec	86	.95	94,118.55	
	Total	179	.70	131707.33	
Location	URBAN	85	.72	88,958.02	
	2 SEMI URBAN	67	.72	35,350.97	0.075
	3 RURAL	27	.21	7,398.33	
	Total	179	.70	131707.33	
Gender	1 Male	143	.70	122,307.68	
	2 Female	36	.60	9,399.65	0.941
	Total	179	.70	131707.33	
Age	1 15-30	111	.51	36,435.19	
	2 31-50	58	.94	79,019.79	
	3 51-65	8	.21	15,643.41	0.051
	4 > 65*	2	.51	608.94	
	Total	179	.70	131,707.33	
Contraband					
All	All	32	0.63	27,717.70	
	Total	211		159,425.03	

*excluded from test

Spirits (whisky, brandy, rum, etc.) are significantly associated with academic standing and to a lesser extent, with age. Respondents with higher education drink largest (0.95 LPA) quantities of pure alcohol from spirits. Even though fewer women drink spirits compared to men, the median litres of pure alcohol for the two groups does not vary significantly implying that the few women who drink spirits consume as much pure alcohol from this source as men.

6.2   Total Volume of Pure Alcohol by Homemade Beverage Variety

Table 43: Bojalwa jwa Setswana: Estimated Median and Total consumption (LPA)

Variable	Categories	n	Median	Total	P-value
Income	1 <P30,000	224	1.58	558,663.96	0.04
	2 30,000-60000	21	.11	24,426.18	
	3 60001-150,000	11	.63	12,463.41	
	4 >150,000	11	.34	2,919.65	
	Total	267	1.16	598473.20	
Education	1 No Formal	91	1.58	252110.72	<0.001
	2 Primary	79	1.58	205183.91	
	3 Secondary	102	.47	151319.45	
	4 Post Sec	21	.12	5804.10	
	Total	293	.89	614418.19	
Location	URBAN	33	.12	16836.56	<0.001
	SEMI URBAN	125	.63	168793.42	
	RURAL	135	1.58	428788.20	
	Total	293	.89	614418.19	
Gender	Male	209	1.16	519,023.02	0.166
	Female	84	.63	95,395.17	
	Total	293	.89	614418.19	
Age	15-30 years	67	.34	84441.03	0.004
	31-50 years	107	1.49	363070.55	
	51-65 years	65	1.16	122687.75	
	> 65 years	53	1.58	43389.64	
	Total	292	.89	613588.96	

Social status is attached to bojalwa jwa Setswana as evidenced by the dichotomy in consumption based on age, location, income and education level.

Bojalwa is associated with older people who live in rural areas and whose education and income levels are the lowest.

Table 44: Khadi: Estimated Median and Total consumption (LPA)

Variable	Category	n	Median	Total	P-value
Income	<P30,000	167	4.39	581,726.57	0.119
	30,000-60000	7	10.24	52,285.15	
	60001-150,000	1	.66	173.06	
	>150,000	1	.32	84.31	
	Total	176	4.39	634269.09	
Education	No Formal	49	1.69	135,316.26	0.088
	Primary	71	10.24	325,348.47	
	Secondary	73	4.39	225,760.60	
	Post Sec	4	8.04	9,610.40	
	Total	197	4.39	696,035.74	
Location	URBAN	16	1.13	21,403.01	0.086
	SEMI URBAN	47	4.02	161,918.55	
	RURAL	134	8.04	512,714.17	
	Total	197	4.39	696,035.74	
Gender	Male	130	5.48	525,107.92	0.457
	Female	67	4.39	170,927.82	
Age	15-30	46	4.39	144,963.69	0.202
	31-50	99	7.31	411,843.14	
	51-65	37	4.39	105,858.28	
	> 65	15	1.46	33,370.62	
	Total	197	4.39	696,035.74	

The data do support the hypothesis that any of the five factors are the drivers of quantities pure alcohol in khadi consumed. Even though those earning annual income of P30,000-P60,000 or are primary school leavers consumed the largest median quantities of pure alcohol from khadi (10.24 LPA), there is no statistical significance to this.

What is apparent is that there is elevated consumption of alcohol among these groups, especially the small number of those whose income is P30000 to P60,000. Income for khadi drinkers is highly skewed with almost all khadi drinkers having a household income below P30,000 per year.

6.3   Observations

Low income groups tend to drink elevated median quantities of all types of alcoholic beverages except bojalwa jwa Setswana (0.11 LPA). Meanwhile there is evidence of elevated median consumption of beer by high income earners (9.95 LPA) and the highly educated (9.44 LPA).

Cheaper beverages per volume of alcohol like khadi, Chibuku and bojalwa jwa Setswana are consumed in high quantities (median LPA) than more expensive beverages. On average, spirits (0.72 LPA and wine (0.56 LPA) are generally consumed in moderation compared to other alcoholic beverages.

Males contribute the largest volume of all types of alcoholic beverages except cider.

7 Effect of Alcohol Consumption on Health

7.1 Effect of Alcohol Consumption on Health

Table 45: Measure of association between health status and alcohol consumption status

Alcohol consumption Status	Health Status			
	Very Good/ Good	Fair	Very Poor/ Poor	P-value
Have consumed alcohol	71.9	17.3	10.8	0.150
Lifetime abstainer	71.9	15.9	12.2	
Current drinker	77.4	15.3	7.3	<0.001
Former drinker	63.1	20.6	16.3	

There is no evidence from the data that alcohol has negative effect on the health status of alcohol consumers (11%) compared to those who have never consumed alcohol (12%), as evidenced by absence of significant difference in proportions of those reporting negative health status between the two groups. It must be noted however, that health status was self-assessed by respondents and could not be corroborated in the field.

Segmenting current and former drinkers evidences significantly varying proportions in reporting the effect of alcohol on one's health status. Former drinkers tended to report negative health status in larger proportions (16%) compared to current drinkers (7%), and this could explain why they have stopped drinking, whether temporarily or permanently. For some, quitting drinking may have been on medical grounds. The larger proportion of former drinkers are older people compared to younger current drinkers. Age is possibly a confounder in this instance considering that health status deteriorates with age.

Table 46: Estimated reported diseases prevalence stratified by consumption status

Disease Type	Consumption Status			p-value
	Current	Former	Abstainer	
Hypertension	%	%	%	
Yes	10.5	22.7	20.8	<0.001
No	89.5	77.3	79.2	
Coronary Heart Disease				
Yes	2.0	4.5	3.3	0.001
No	98.0	95.5	96.7	
Diabetes				
Yes	2.0	6.5	5.0	0.001
No	98.0	93.5	95.5	
Depression				
Yes	1.7	2.5	1.5	0.133
No	98.3	97.5	98.5	

Overall prevalence of 18% for hypertension, 3% coronary heart disease (CHD), 4% diabetes are estimated for this sample. Few cases are reported for other diseases enumerated in the instrument. Association (p-vale<0.001) exists between the alcohol consumption status of respondents and each of the three most widely reported diseases. *It is obvious that reporting of disease status, is based on one's exposure to health services, because those who have never sought medical services would be unlikely to know their disease status, somewhat explaining the general low estimates of prevalence.*

Current drinkers report the lowest prevalence for all diseases. Hypertension (11%), CHD (2%), Diabetes (2%) compared to former drinkers at 23%, 5% and 7% respectively. One attributable factor to differences could be reporting differentials among those seeking medical services for diagnosis. It is important to note that gender and age are confounders in all the three diseases, considering that double the proportion of females report hypertension compared to males. For both genders, retirees report hypertension on a 9 female retiree and 14 male retiree compared to 1 youth of each gender. There is no evidence of association between depression and consumption status.
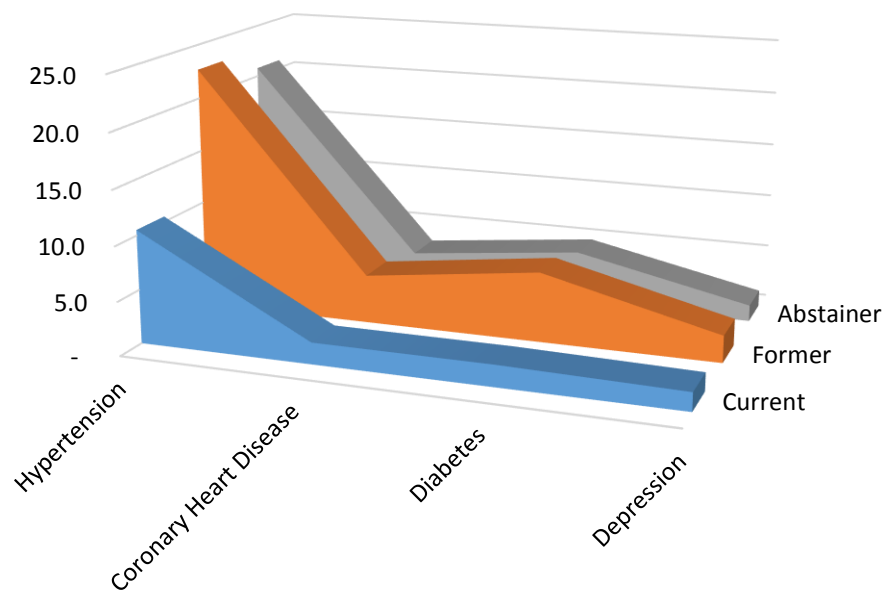
7.2   Episodic Drinking

Table 47: Frequency of drinking (n=1814)

	n	Percent
1 – EVERY DAY	184	10.1
2 – 5 TO 6 DAYS A WEEK	35	1.9
3 – 3 TO 4 DAYS A WEEK	169	9.3
4 – 1 TO 2 DAYS A WEEK	482	26.6
5 – 2 TO 3 DAYS A MONTH	307	16.9
6 – ONCE A MONTH	250	13.8
7 – 6 TO 11 DAYS IN THE PAST 12 MONTHS	125	6.9
8 – 2 TO 5 DAYS IN THE PAST 12 MONTHS	185	10.2
9 – ONCE IN THE PAST 12 MONTHS	75	4.1
Don't know	1	0.1
Refused	1	0.1

10% of all respondents reported drinking every day while 57% drank between 1-2 days a week and once a month. 14% drank less than 6 days per year.
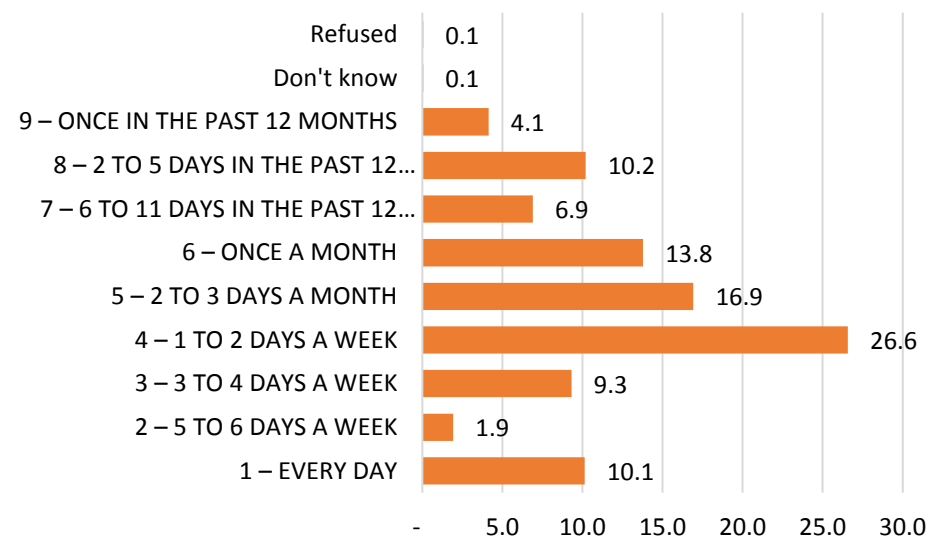
Table 48: Longest single drinking session (n=1814)

It is noted that some hyperbole and exaggeration may have been displayed in some of the responses.

	n	Percent
1 – 48 HOURS OR MORE	88	4.9
2 - 36 TO 47 HOURS	33	1.8
3 – 24 TO 35 HOURS	166	9.2
4 – 12 TO 23 HOURS	363	20.0
5 – 6 TO 11 HOURS	539	29.7
6 – 3 TO 5 HOURS	428	23.6
7 – 1 TO 2 HOURS	141	7.8
8 – LESS THAN 1 HOUR	41	2.3
Don't know	14	0.8
Refused	1	0.1

5% of respondents reported very long drinking sessions (48 hours or more), and 65% had drunk for more than 5 hours in a single session.
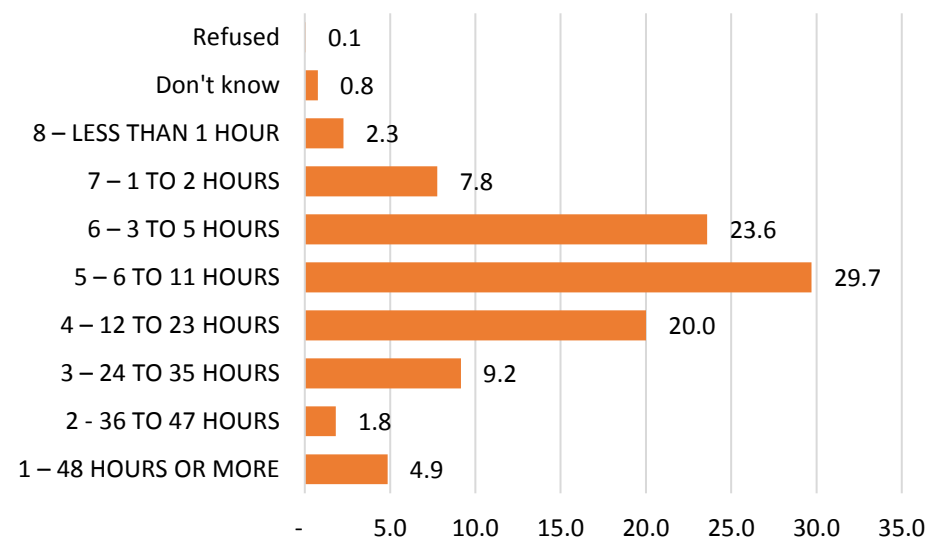
Table 49: Frequency of longest drinking session (n=1814)

	Every day	5 to 6 days a week	3 to 4 days a week	1 to 2 days a week	2 to 3 days a month	Once a month	6 to 11 days in the past 12 months	2 to 5 days in the past 12 months	Once in the past 12 months	Don't know	Refused	**TOTAL**
1 – 48 HOURS OR MORE	**19**	**7**	**12**	22	12	8	6	2	0	0	0	88
2 - 36 TO 47 HOURS	**4**	**3**	**6**	14	5	1	0	0	0	0	0	33
3 – 24 TO 35 HOURS	**27**	**3**	**29**	71	21	9	3	3	0	0	0	166
4 – 12 TO 23 HOURS	**48**	**6**	**51**	122	78	39	12	4	3	0	0	363
5 – 6 TO 11 HOURS	**58**	**9**	**44**	157	93	71	49	43	15	0	0	539
6 – 3 TO 5 HOURS	22	7	20	78	72	87	39	84	18	1	0	428
7 – 1 TO 2 HOURS	3	0	3	14	23	25	12	39	22	0	0	141
8 – LESS THAN 1 HOUR	2	0	1	2	1	9	4	7	15	0	0	41
Don't know	1	0	3	2	2	1	0	3	2	0	0	14
Refused	0	0	0	0	0	0	0	0	0	0	1	1
TOTAL	184	35	169	482	307	250	125	185	75	1	1	1814

326 respondents (18%) reported having drinking sessions equal to or longer than 5-6 hours 3 or more days a week.

Table 50: Largest number of drinks in one session (n=1813)

	n	Percent
1 – 36 DRINKS OR MORE	79	4.4
2 - 25 TO 35 DRINKS	89	4.9
3 – 19 TO 24 DRINKS	139	7.7
4 – 16 TO 18 DRINKS	132	7.3
5 – 12 TO 15 DRINKS	250	13.8
6 – 9 TO 11 DRINKS	187	10.3
7 – 7 TO 8 DRINKS	153	8.4
8 – 5 TO 6 DRINKS	277	15.3
9 - LESS THAN 5 DRINKS	467	25.8
Don't know	38	2.1
Refused	2	0.1

9% of respondents reported drinking 25 or more drinks in a single session. 26% consumed less than 5 drinks in their longest drinking session.
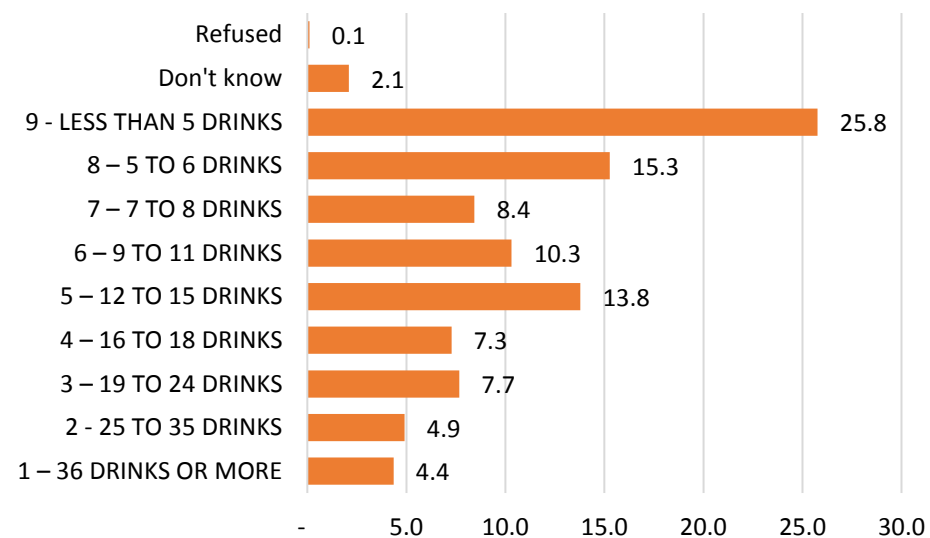
Table 51: Frequency of consumption of largest number of drinks (n=1814)

	n	Percent
1 - EVERY DAY	23	1.3
2 – 5 TO 6 TIMES A WEEK	5	0.3
3 – 3 TO 4 TIMES A WEEK	27	1.5
4 – 1 TO 2 TIMES A WEEK	96	5.3
5 – 2 TO 3 TIMES A MONTH	128	7.1
6 – ONCE A MONTH	277	15.3
7 – 6 TO 11 TIMES IN THE PAST 12 MONTHS	199	11.0
8 – 2 TO 5 TIMES IN THE PAST 12 MONTHS	603	33.2
9 – ONCE IN THE PAST 12 MONTHS	434	23.9
Don't know	20	1.1
Refused	2	0.1

57% of respondents had a heavy drinking session fewer than 5 times a year, with 24% having only one such session
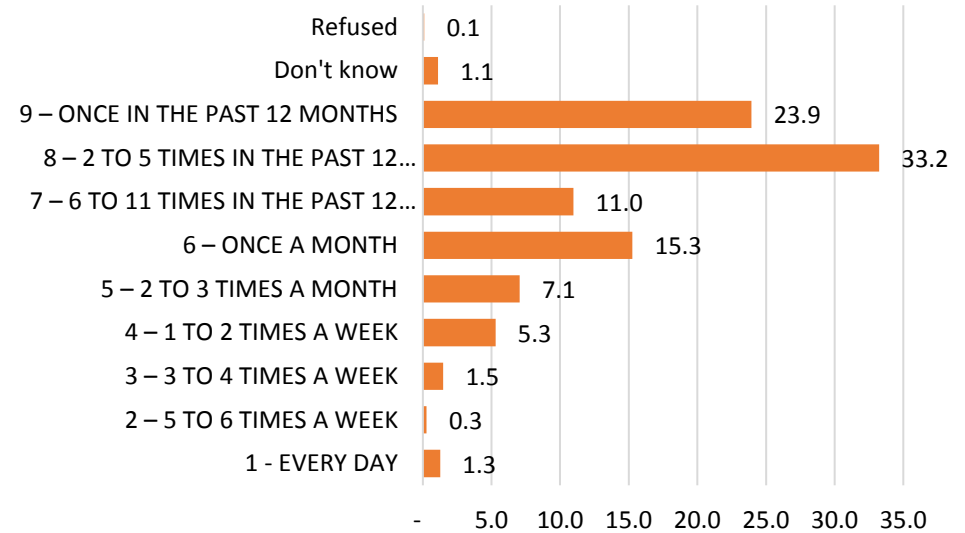
Table 52: Largest number of drinks by frequency (n=1813)

	1 – 36 DRINKS OR MORE	2 - 25 TO 35 DRINKS	3 – 19 TO 24 DRINKS	4 – 16 TO 18 DRINKS	5 – 12 TO 15 DRINKS	6 – 9 TO 11 DRINKS	7 – 7 TO 8 DRINKS	8 – 5 TO 6 DRINKS	9 - LESS THAN 5 DRINKS	Don't know	Refused	TOTAL
1 - EVERY DAY	1	1	1	3	0	4	3	1	9	0	0	23
2 – 5 TO 6 TIMES A WEEK	1	0	1	0	1	0	1	0	1	0	0	5
3 – 3 TO 4 TIMES A WEEK	0	1	2	0	0	2	0	12	9	1	0	27
4 – 1 TO 2 TIMES A WEEK	2	2	2	0	6	12	9	21	41	1	0	96
5 – 2 TO 3 TIMES A MONTH	4	6	6	7	14	12	13	22	43	1	0	128
6 – ONCE A MONTH	7	9	16	26	41	35	22	35	83	3	0	277
7 – 6 TO 11 TIMES IN THE PAST 12 MONTHS	9	18	13	11	37	17	16	29	47	1	0	198
8 – 2 TO 5 TIMES IN THE PAST 12 MONTHS	31	33	66	53	80	56	52	96	129	6	1	603
9 – ONCE IN THE PAST 12 MONTHS	23	18	32	32	69	49	36	60	102	13	0	434
Don't know	1	1	0	0	2	0	1	1	3	11	0	20
Refused	0	0	0	0	0	0	0	0	0	1	1	2
TOTAL	79	89	139	132	250	187	153	277	467	38	2	1813

Episodic drinking schematic
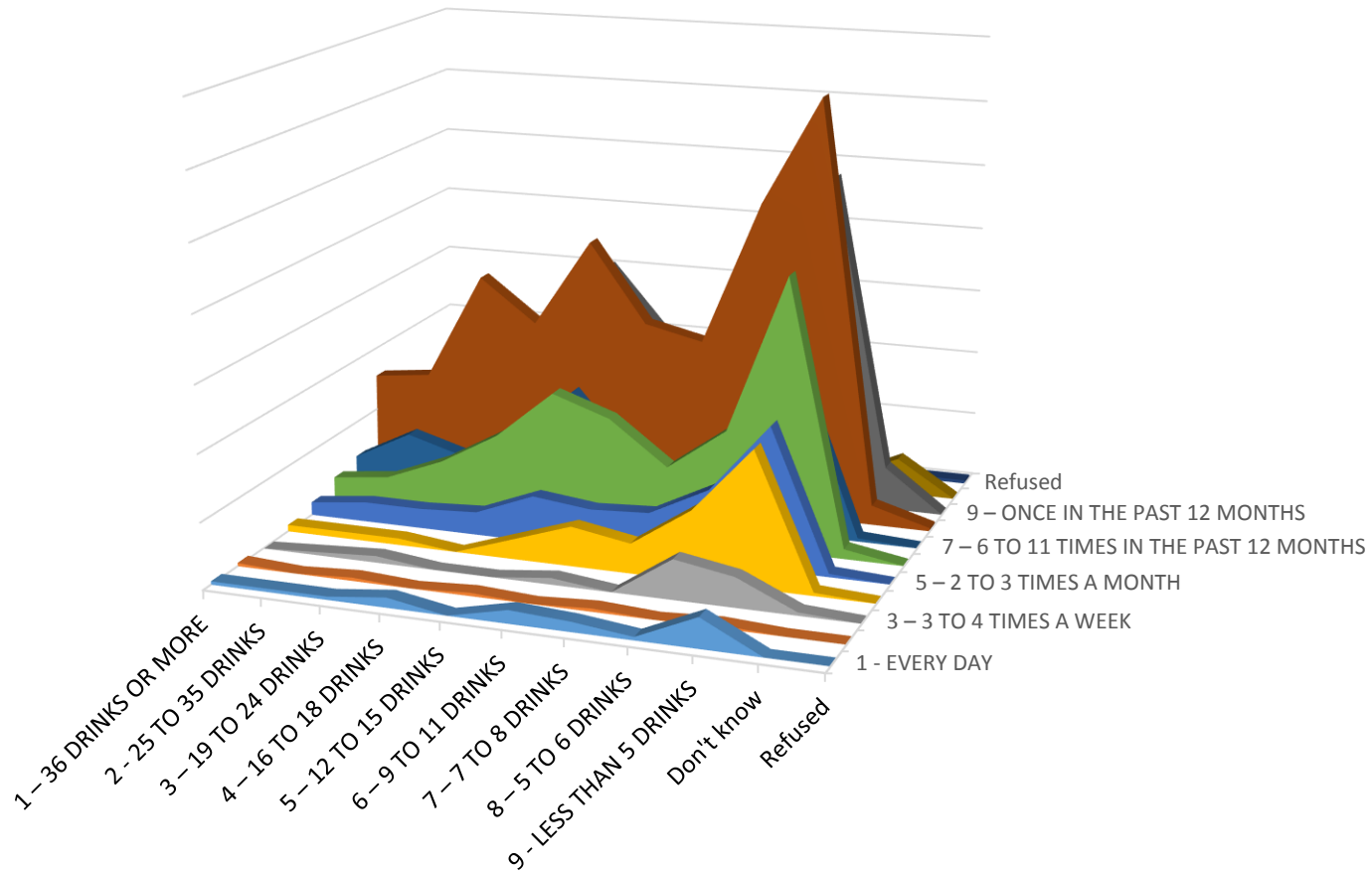
Table 53: Medical conditions by episodic drinking indicators

	All Current Drinkers (n=1815)	High Risk (n=81)	Moderate Risk (n=152)	Slight Risk (n=180)
No medical conditions	77.6	75.3	78.3	85.6
I Medical condition	18.8	17.3	17.8	14.4
2 Medical condition	2.8	7.4	2.6	-
3 Medical condition	0.8	-	1.3	-

Some association was observed between the number of reported health conditions and episodic drinking risk indicators, but as discussed above, age was likely also a confounding factor.
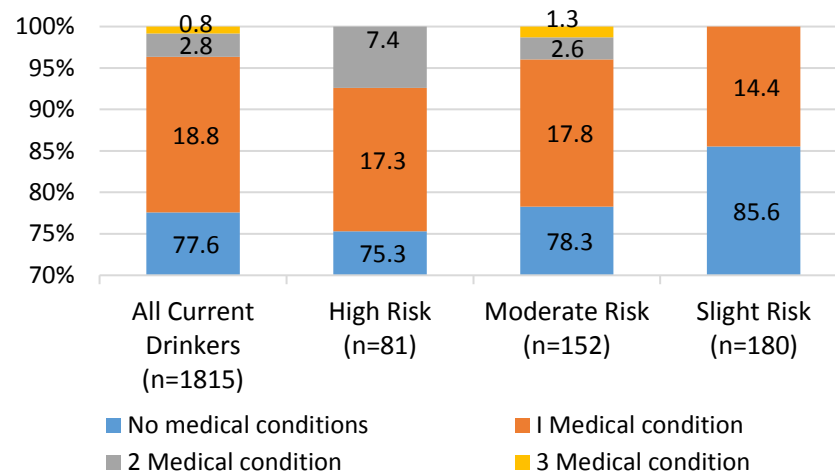
8 Perceptions and Attitudes

8.1 Perceptions and Attitudes of Current Drinkers

8.1.1 Impact of Alcohol Consumption

Current drinkers were asked how many times their drinking had affected various aspects of their personal and social life during the previous 12 months.

Table 54: Drinking harmed my... (n=1815)

	Marriage	Social life	Health	Work / studies	Finances
0 Times	73.2	78.2	75.1	81.9	51.3
1 Time	4.4	5.4	7.0	5.7	4.1
2 or 3 Times	8.1	7.1	6.0	4.2	8.3
More than 3 times	14.3	9.3	12.0	8.1	36.2

The most persistent concern expressed by respondents was their finances followed by their marriage. Respondents appeared less concerned about effects on their health, social life and work/studies.
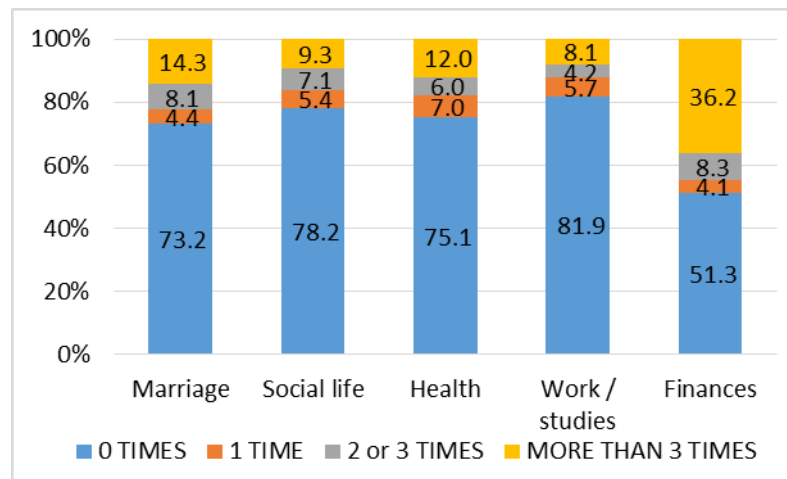
8.1.2   Drink Driving

Table 55: Drink Driving (n=1815)

Drink Driving	n	Percent
Never drank and drove	1470	81.0
Did drink and drive	323	17.8
Refused/Don't know	22	1.2

18% of respondents admitted to driving while above the legal limit.
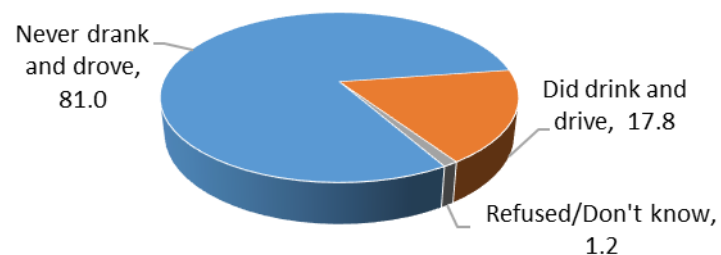
Table 56: Frequency of drink-driving (n=323)

Frequency	n	Percent
1 - 5 times	147	45.5
6 to 10 times	39	12.1
11-20 times	31	9.6
More than 20 times	106	32.8

While the majority of respondents (n=323) who admitted drink-driving, 33% of these were 'serial' drink-drivers, who transgressed more than 20 times a year.
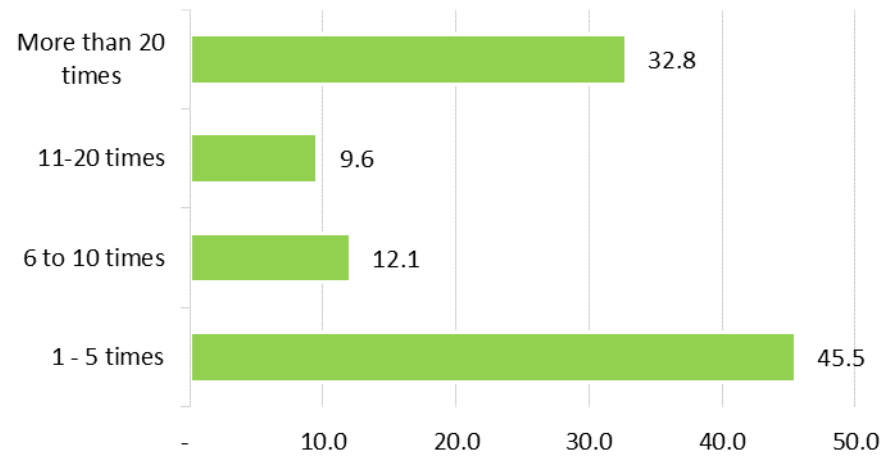
8.1.3   Outcomes of Drinking

How true is it that when you drink…

Table 57: Current drinkers - drinking outcomes (n=1815)

	Very often true	Often true	Sometimes true	Rarely true	Never true
Trouble with police	2.2	1.5	6.5	5.2	84.6
Black out	5.4	3.3	11.1	5.6	74.5
Become aggressive	5.8	2.7	10.6	6.9	74.0
Feel sick	6.3	4.2	12.2	9.7	67.6
Regret actions later	14.7	5.8	15.8	6.8	57.0
Feel sexually attractive	14.9	4.1	6.7	4.1	70.2
Sex more pleasurable	18.4	4.8	9.0	3.6	64.1
Forget problems	18.8	5.7	11.3	7.9	56.4
Easy to talk about feelings	24.7	9.7	13.1	6.8	45.7
Feel relaxed	45.2	11.3	11.8	4.3	27.4
Become friendly	46.4	17.0	15.9	4.1	16.6
Have lots of fun	55.7	16.1	11.9	3.8	12.6
Feel happy	65.1	15.2	12.1	2.6	5.0

Most reported outcomes were positive (feel happy, have fun, become friendly and relaxed).
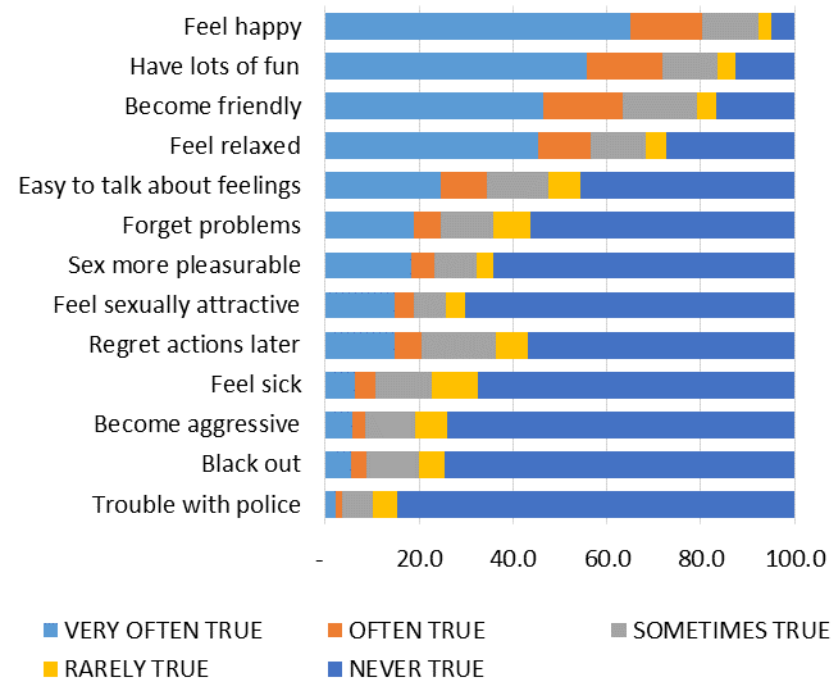
8.1.4 Motivation for Drinking: Current Drinkers

The reason I drink…

Table 58: Current drinkers - motivations for drinking (n=1815)

	Very important	Somewhat important	A little important	Not at all important
For health reasons	1.6	1.2	1.8	95.4
Other reason	5.8	0.1	0.2	93.9
To enjoy meals	6.2	5.5	4.8	83.5
Because of anxiety	6.5	5.9	8.3	79.3
Easier to talk to partner	7.1	7.8	9.4	75.7
To feel less inhibited	12.6	7.6	10.6	69.2
To forget worries	15.3	8.4	10.6	65.7
Because others are drinking	27.2	12.2	8.0	52.6
To be sociable	44.8	16.1	9.5	29.6
To celebrate	51.3	18.3	7.6	22.9
To feel good	54.7	22.6	9.3	13.5
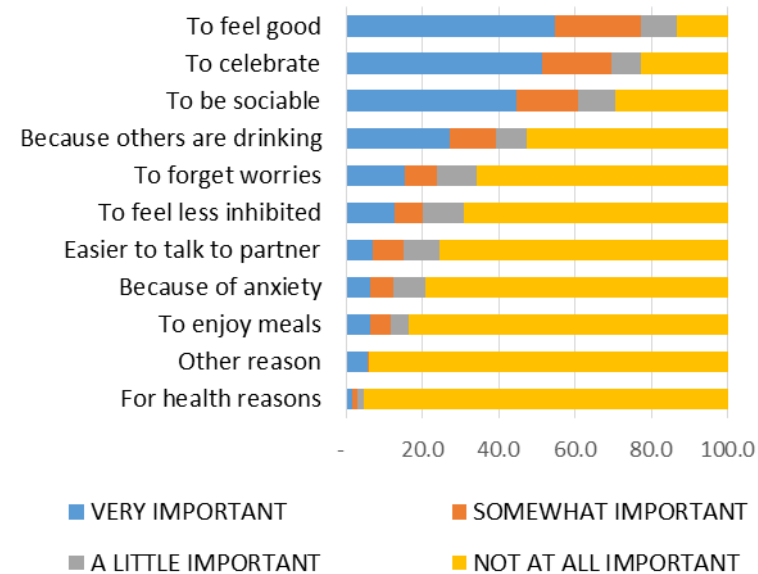
Table 59: Other reasons…

	Very important	Somewhat important	A little important
Attracted by advertisements	-	-	1
To curb drug addiction	-	1	-
To get drunk	1	-	-
To quench thirst	1	-	-
Drink when money is available	2	-	-
To curb hunger	2	-	-
To curb insomnia	2	-	-
To improve mental focus	2	-	-
To curb loneliness	3	1	-
To improve productivity	3	-	-
For personal reasons	4	-	-
Drink for leisure	7	-	-
No particular reason	7	-	-
Enjoy the taste	8	-	-
For the love of alcohol	9	-	-
To relax	9	-	-
For traditional/cultural reasons	10	-	1
To curb boredom	10	-	1
Drink for entertainment	12	-	-
To relieve stress	13	-	-
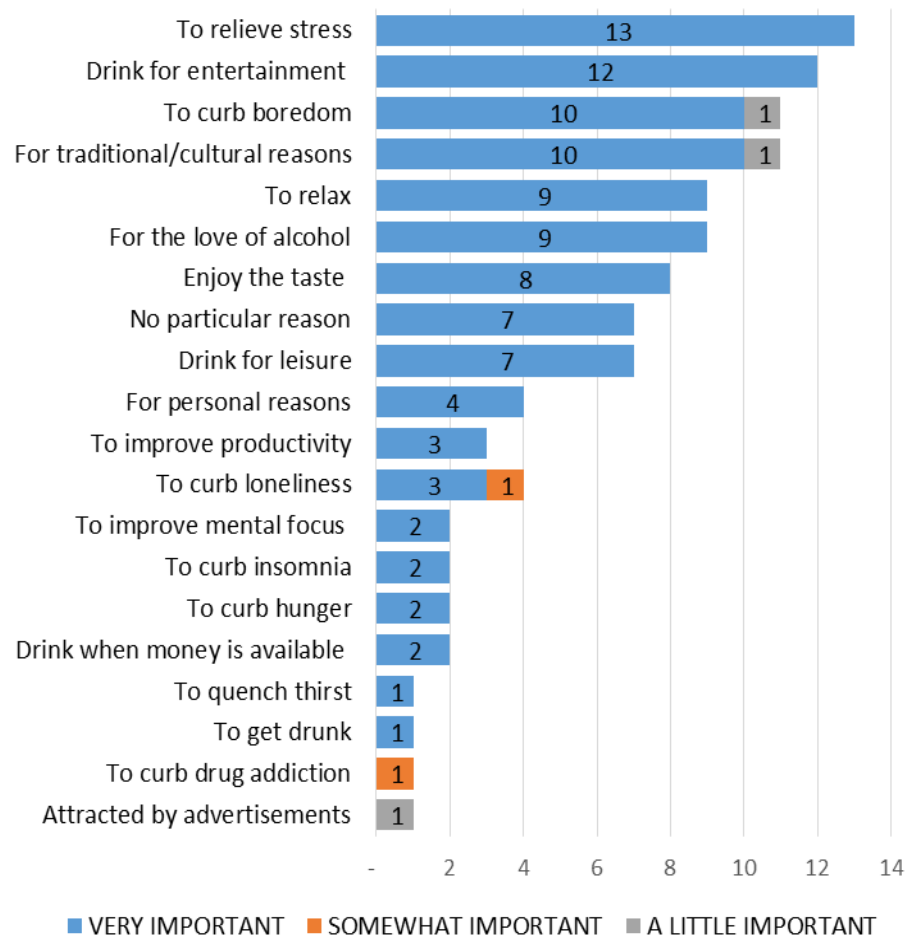
8.1.5   Moderation

Table 60: Have you ever limited your drinking? (n=1802)

	Male (n=1175)	**Female (n=627)**	Total (n=1802)
Yes	41.6	44.7	769
No	58.4	55.3	1033

57% of respondents admitted to having not limited their drinking during the previous 12 months.
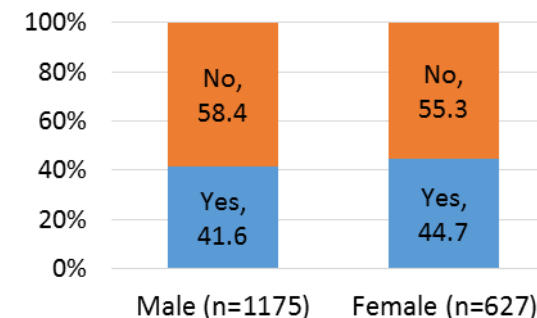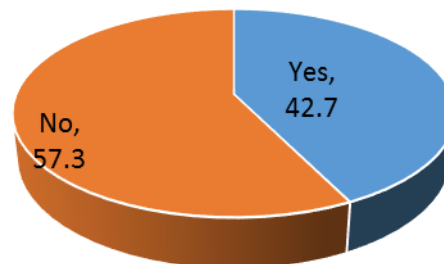
Table 61: Reasons for limiting drinking (n=769)

Multiple Responses	Very important	Somewhat important	A little important	Not at all important
Trying to have a baby	6.3	1.5	3.4	88.9
Too young to drink	8.6	5.1	3.0	83.4
Because of religious reasons	10.0	4.6	6.0	79.4
Taking medication / have allergy	11.5	2.1	2.6	83.8
Been hurt by someone's drinking	14.1	4.7	7.6	73.7
Family members disapprove	20.2	7.3	6.9	65.6
Other reason*	22.2	0.4	-	77.4
It could affect school/work	31.6	9.0	5.3	54.1
Have had alcohol problems	31.9	9.6	5.9	52.7
Seen bad examples of what it does	43.2	10.8	6.5	39.5
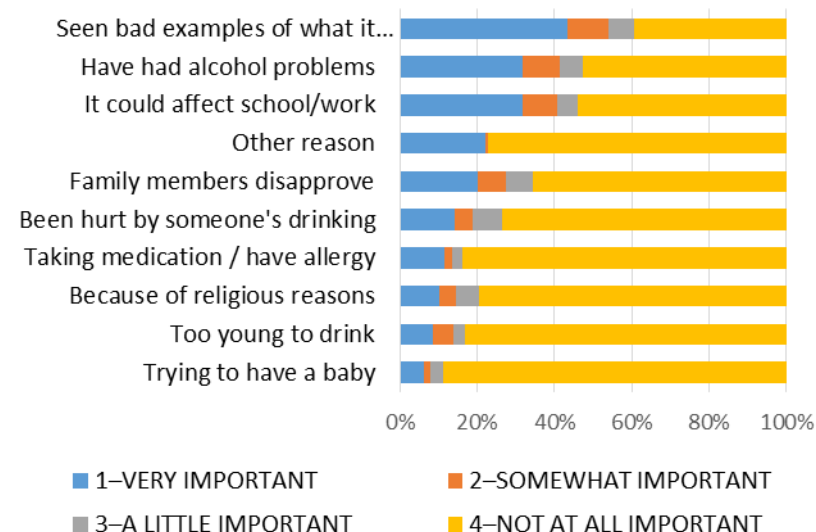
Table 62: Other reasons (n=174)

	Very important	Somewhat important
Lack of sorghum to brew	1	
Dislike taste of alcohol	1	
Reduced bar opening hours	1	
For personal reasons	4	
To be a responsible driver	4	
To avoid getting into fights/trouble	6	
Because of old age	8	
No need to over indulge	28	
To be responsible	28	
For financial reasons	90	3

Financial reasons were very important for 90 respondents (5%).
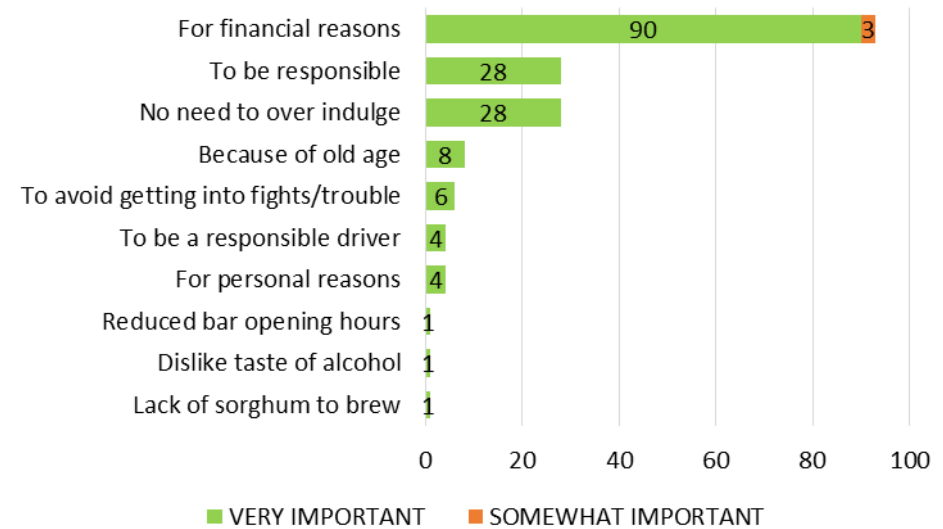
8.2 Perceptions and Attitudes of Former Drinkers

8.2.1 Outcomes (Former Drinkers)

How true is it that when you used to drink…

Table 63: Former Drinkers: drinking outcomes (n=1120)

	Very often true	Often true	Sometimes true	Rarely true	Never true
Trouble with police	4.0	1.2	4.0	4.4	86.5
Black out	7.1	4.6	10.3	4.6	73.4
Become aggressive	11.2	3.4	11.4	4.4	69.6
Sex more pleasurable	11.3	5.7	7.6	2.9	72.5
Feel sexually attractive	12.2	4.9	5.0	4.3	73.5
Feel sick	13.2	6.1	12.1	6.6	62.0
Forget problems	18.8	5.0	10.3	7.0	58.9
Easy to talk about feelings	21.0	10.0	12.2	6.7	50.1
Regret actions later	23.1	7.1	14.3	6.5	49.0
Feel relaxed	27.7	10.7	13.8	5.6	42.2
Become friendly	40.6	17.0	16.4	5.2	20.8
Have lots of fun	50.2	16.9	13.0	4.1	15.8
Feel happy	58.5	15.2	11.0	3.5	11.9
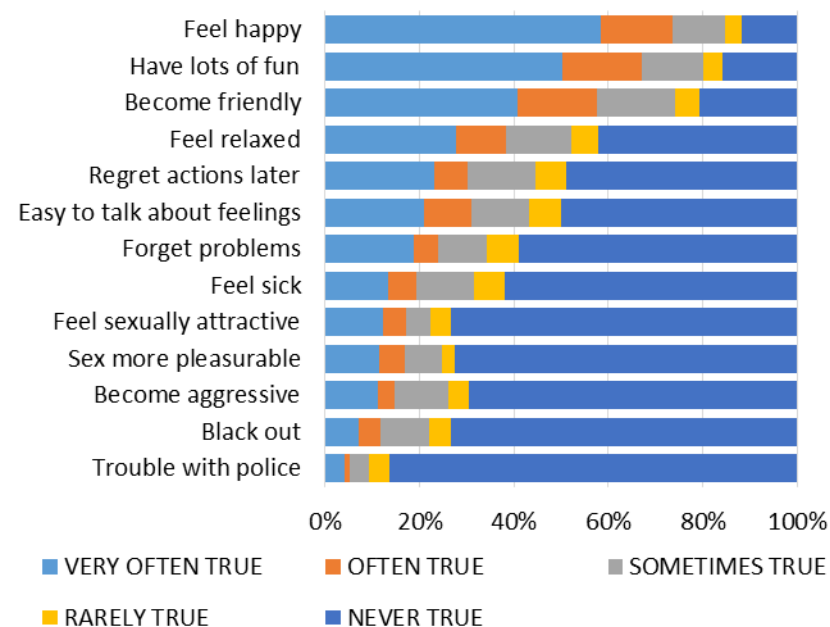
8.2.2 Motivation (Former Drinkers)

The reasons you drank…

Table 64: Former drinkers - drinking motivations (n=1120)

	Very important	Somewhat important	A little important	Not at all important
For health reasons	1.0	0.7	1.3	97.0
To enjoy meals	3.6	3.8	6.3	86.4
Other reason*	4.9	0.4	0.4	94.2
Because of anxiety	5.1	6.9	7.0	81.0
Easier to talk to partner	7.7	8.2	8.6	75.5
To forget worries	12.3	9.0	11.0	67.7
To feel less inhibited	15.8	9.8	10.2	64.2
To be sociable	48.6	16.6	9.0	25.8
To celebrate	50.2	15.9	9.0	24.9
To feel good	50.7	21.0	10.0	18.4
Because others are drinking	52.6	16.8	6.6	24.0
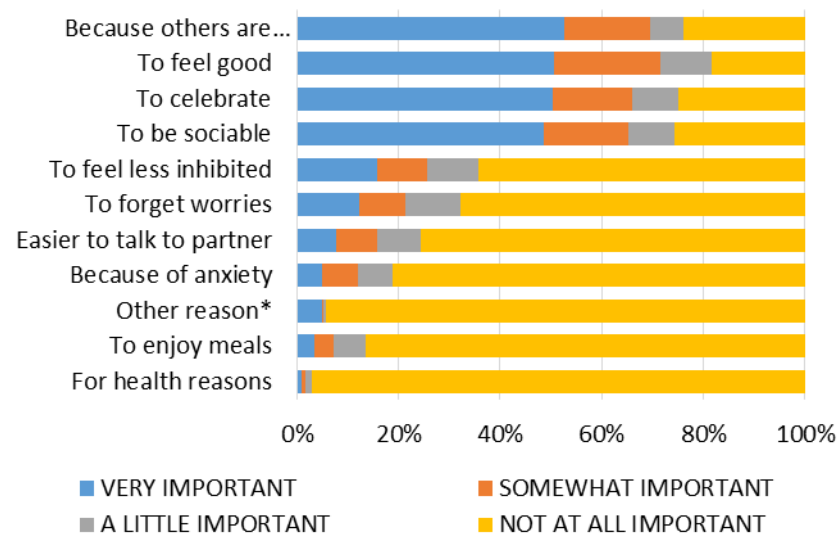
Table 65: Other reasons (n=56)

	Very important	Somewhat important	A little important
To curb loneliness	0	2	0
Drank to feel manly	1	0	0
For personal reasons	1	0	0
To curb hunger	1	0	0
To quench thirst	1	0	0
To relax	1	0	0
To show off wealth	1	0	0
Drank while doing farm work	2	0	0
For traditional/cultural reasons	2	0	0
To curb boredom	2	0	1
Drank for leisure	3	0	0
No particular reason, just drank	4	0	0
To relieve stress	7	0	0
For fun/entertainment	12	0	0
Was experimenting	12	2	1
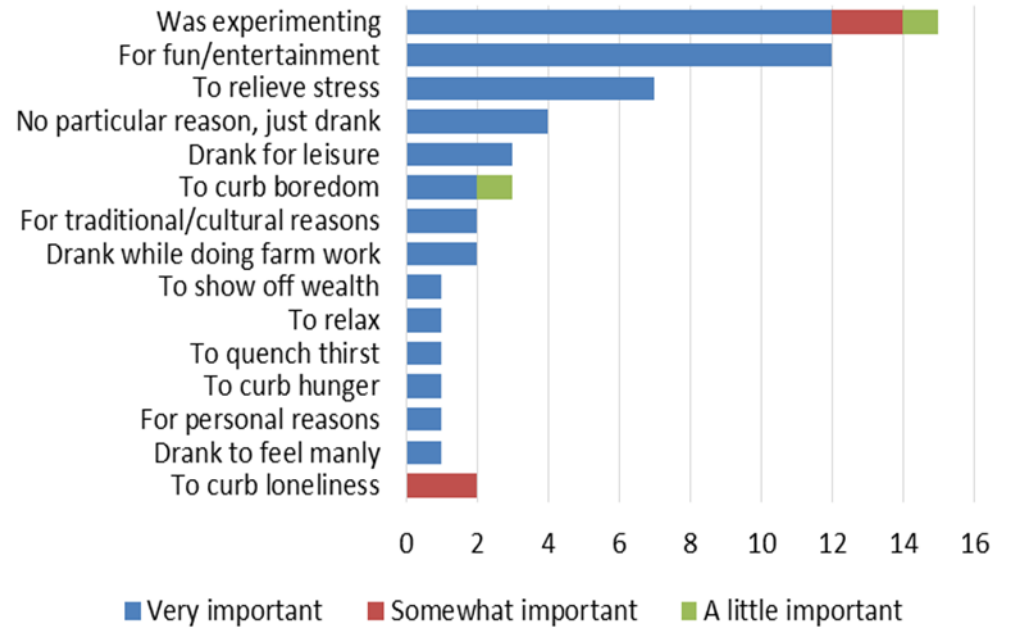
8.2.3 Moderation (Former Drinkers)

Did you ever limit your drinking?

Table 66: Former drinkers - limit drinking (n=1100)

	Male (n=469)	Female (n=631)	Total (n=1100)
Yes	30.3	35.2	33.1
No	69.7	64.8	66.9
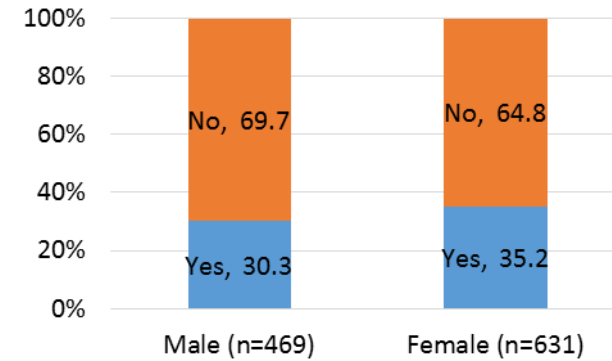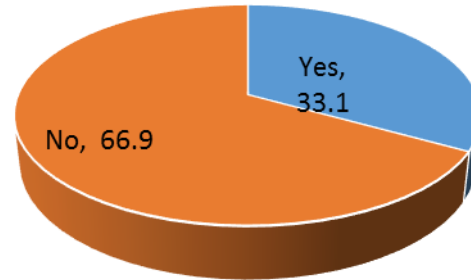
Table 67: The reason you limited your drinking was…

	Very important	Somewhat important	A little important	Not at all important
Trying to have a baby	9.3	1.1	2.8	86.7
Too young to drink	9.9	4.1	3.0	83.0
Other reason	16.2	0.3	-	83.5
Taking medication / have allergy	16.3	3.3	2.5	78.0
Been hurt by someone's drinking	16.5	7.1	6.3	70.1
Because of religious reasons	20.6	4.7	4.9	69.8
Family members disapprove	22.6	9.9	6.9	60.6
It could affect school/work	24.5	8.5	3.8	63.2
Have had alcohol problems	32.7	10.4	6.0	50.8
Seen bad examples of what it does	47.8	11.5	7.4	33.2
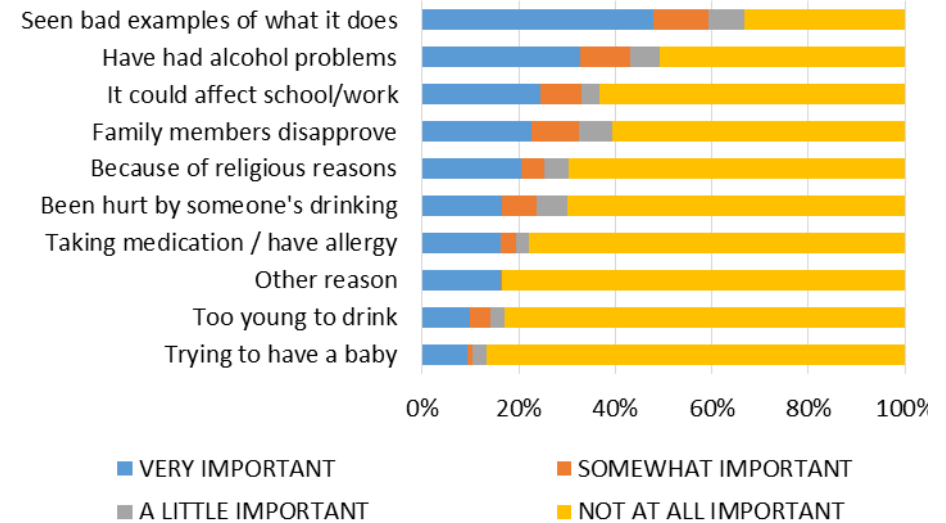
Table 68: Other reasons (n=59)

	Very important	Somewhat important
Changed social circle	1	-
Did not like alcohol	1	-
Did not like taste of alcohol	1	-
Low alcohol tolerance	1	-
Old age made it hard to handle large volumes of alcohol	1	-
Did not have need to over indulge	3	-
Drinking was of no benefit	3	-
No specific reason	5	-
To be responsible person	15	-
For financial reasons	27	1
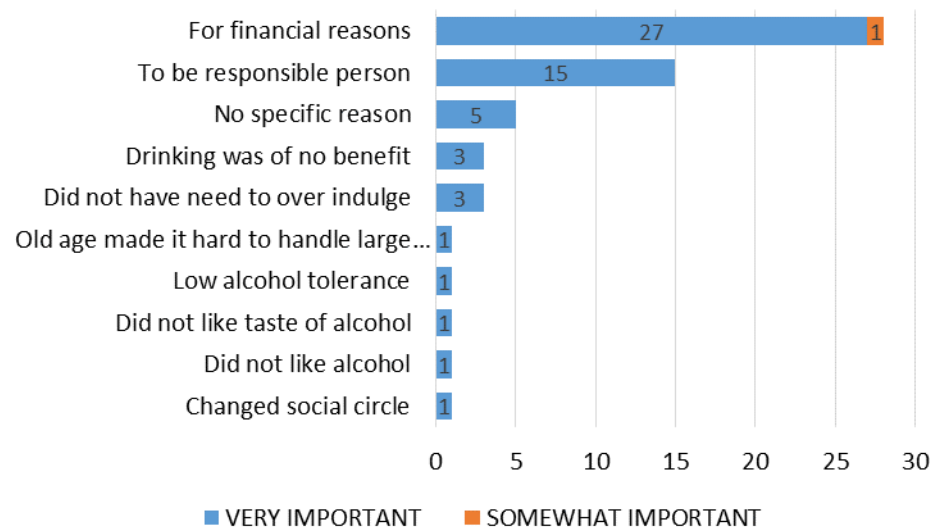
8.3 Perceptions and Attitudes of Lifetime Abstainers

8.3.1 Motivation for Not Drinking

The reason you do not drink is…

Table 69: Abstainers - motivation (n=2289)

	Very important	Somewhat important	A little important	Not at all important
Trying to have a baby	2.1	1.2	1.6	95.2
Have an allergy	4.8	1.2	1.0	93.0
Too young to drink	7.1	2.8	2.2	87.9
Have had alcohol problems	11.0	3.1	2.6	83.3
It could affect school/work	21.8	5.9	4.3	67.9
Family members disapprove	22.2	5.3	3.4	69.1
Been hurt by someone's drinking	23.2	6.6	5.6	64.5
Other reason	33.0	0.2	0.1	66.7
Because of religious reasons	36.5	5.4	4.3	53.8
Seen bad examples of what it does	50.5	9.4	3.9	36.1
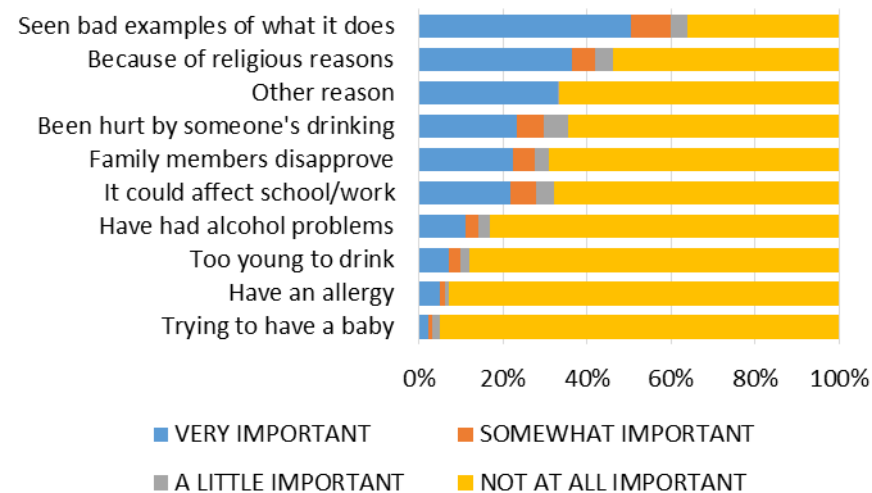
Table 70: Other reasons (n=754)

	Very important	Somewhat important	A little important
For personal safety reasons	1	0	0
Personal reasons	3	0	0
Do not like the smell of alcohol	6	0	0
For cultural reasons	6	0	0
Want to be a responsible person	9	0	0
Do not like the taste of alcohol	12	0	0
Made personal choice not to drink alcohol	22	1	0
Do not see the value/use of drinking alcohol	36	0	0
For financial reasons	68	1	0
Do not like/hate alcohol	91	0	1
Not interested in drinking alcohol	496	1	0
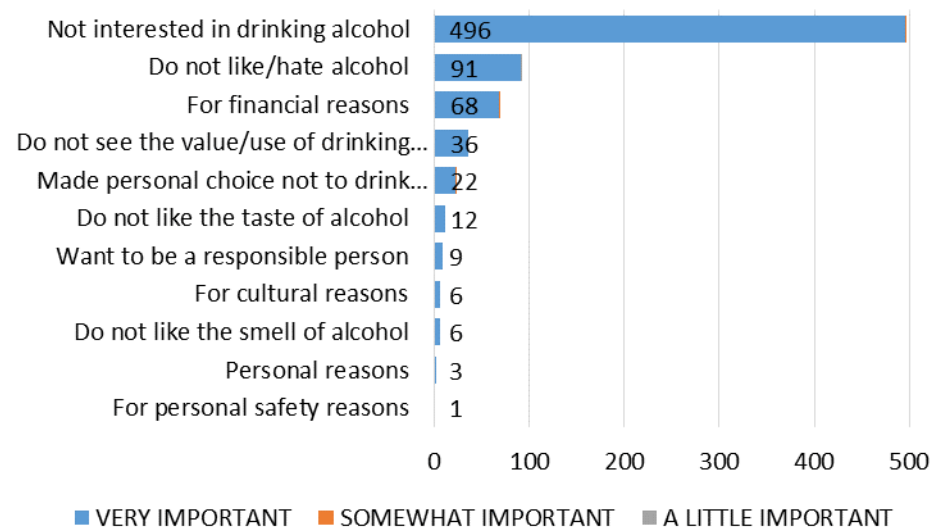
8.4 Attitudes to Alcohol Policy

Table 71: Policy Attitudes - All respondents (n=5206)

	Agree	Neither agree or disagree	Disagree
Ban alcohol adverts	47.6	6.2	46.1
Increase alcohol prices	51.5	6.2	42.3
Decrease number of outlets	60.0	6.0	34.1
Better regulation of homemade alcohol	78.0	4.6	17.5
Ban adverts targeting youth	78.9	4.6	16.5
Enforce breath-testing year round	88.4	4.1	7.5
No outlets near religious places	88.4	3.1	8.5
Reduce blood alcohol limit	88.8	4.3	6.9
Should have warning labels	94.4	2.2	3.4
No outlets near schools	96.4	1.2	2.4
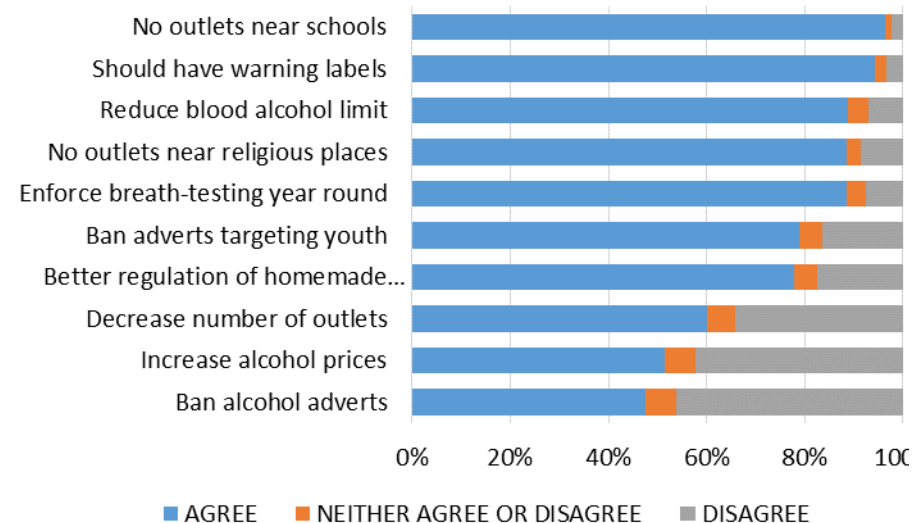
8.4.1 Current Drinkers

Table 72: Policy Attitudes - Current drinkers (n=1809)

	Agree	Neither agree or disagree	Disagree
Ban alcohol adverts	26.7	5.6	67.7
Increase alcohol prices	29.6	4.7	65.7
Decrease number of outlets	34.8	6.1	59.1
Better regulation of homemade alcohol	69.0	5.6	25.3
Ban adverts targeting youth	67.1	6.0	26.9
Enforce breath-testing year round	79.5	7.4	13.2
No outlets near religious places	82.3	4.6	13.2
Reduce blood alcohol limit	78.1	8.8	13.1
Should have warning labels	89.6	4.0	6.4
No outlets near schools	94.3	1.7	4.0
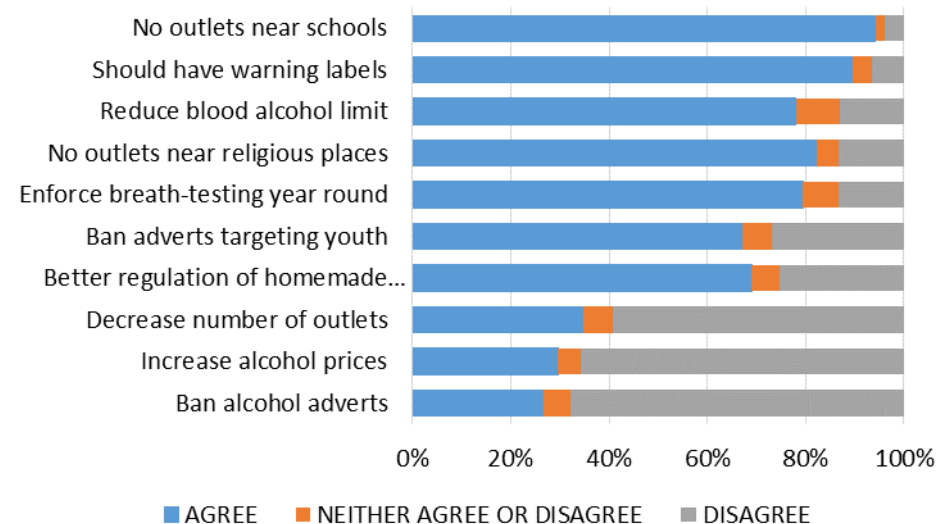
8.4.2 Former Drinkers

Table 73: Policy Attitudes - Former drinkers (n=1119)

	Agree	Neither agree or disagree	Disagree
Ban alcohol adverts	55.8	6.4	37.9
Increase alcohol prices	57.2	6.5	36.4
Decrease number of outlets	67.3	6.4	26.3
Better regulation of homemade alcohol	80.3	3.4	16.3
Ban adverts targeting youth	82.6	4.2	13.2
Enforce breath-testing year round	92.0	3.0	5.0
No outlets near religious places	90.8	2.5	6.7
Reduce blood alcohol limit	93.8	2.3	3.9
Should have warning labels	95.8	1.5	2.7
No outlets near schools	97.0	1.2	1.9
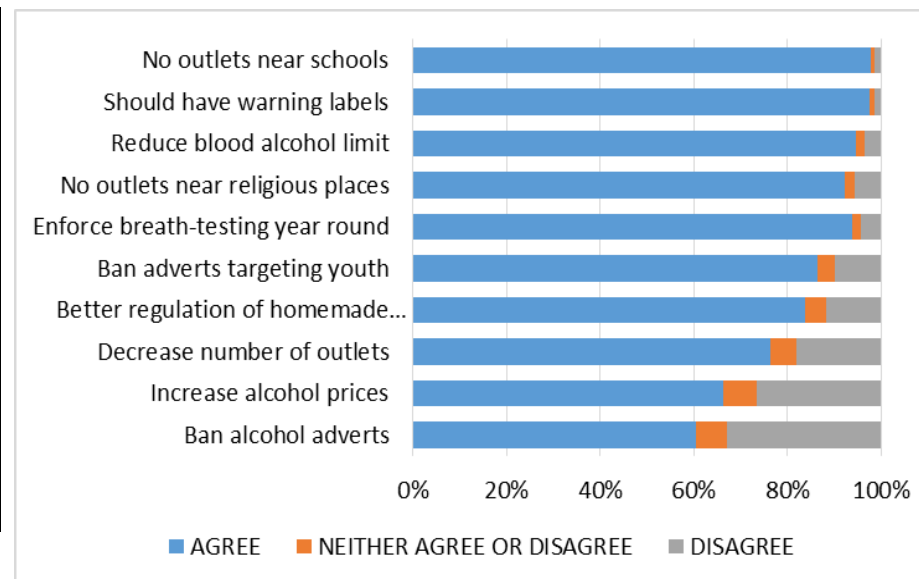
8.4.3 Lifetime Abstainers

Table 74: Policy Attitudes – Abstainers (n=2277)

	Agree	Neither agree or disagree	Disagree
Ban alcohol adverts	60.4	6.7	32.9
Increase alcohol prices	66.2	7.2	26.6
Decrease number of outlets	76.4	5.7	18.0
Better regulation of homemade alcohol	83.9	4.3	11.8
Ban adverts targeting youth	86.5	3.7	9.8
Enforce breath-testing year round	93.7	2.1	4.2
No outlets near religious places	92.2	2.1	5.7
Reduce blood alcohol limit	94.8	1.7	3.5
Should have warning labels	97.6	1.1	1.3
No outlets near schools	97.7	0.8	1.5
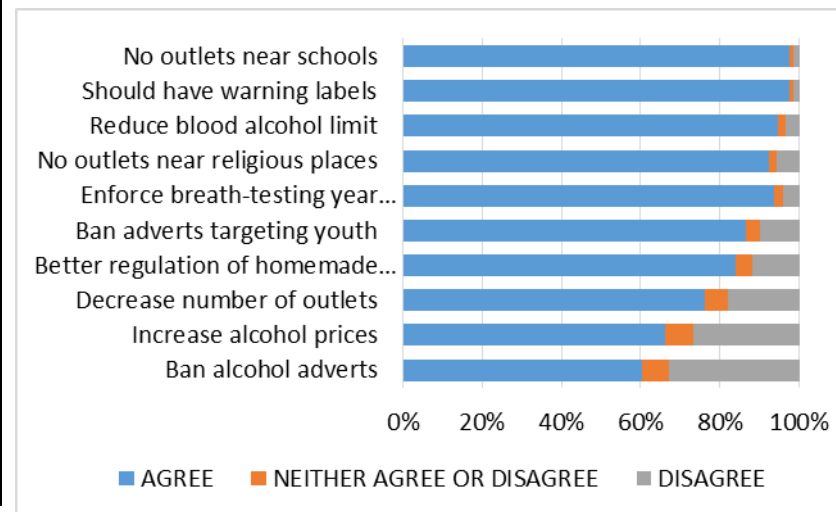
9   Reasons for Drinking Homemade (Non-Commercial) Alcohol

There is no exclusivity in the consumption of these homemade beverages, that is, a respondent can drink a multiple varieties.

Table 75: Reasons for preference of homemade alcohol

Multiple responses	Yes	No
Cheaper	70.0	30.0
More potent	27.5	72.5
Convenient Location	54.7	45.3
Convenient Trading Hours	37.6	62.4
No age restrictions	24.0	76.0
Better than CA	41.4	58.6
Health reasons	9.7	90.3
Tradition	73.7	26.3

Tradition, price and convenient location were the main drivers for choosing homemade alcohol.
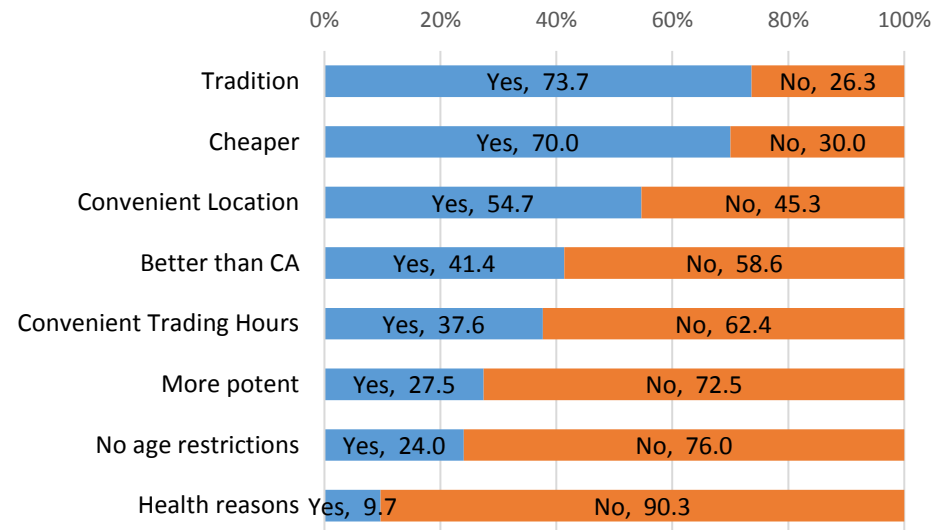
Table 76: Other reasons (n=48)

	n	Percent
Cleanses the digestive system	17	35.4
Does not contain additives therefore healthier than commercial alcohol	12	25.0
Heals respiratory system	2	4.2
Less potent than commercial alcohol	6	12.5
No side effects/hangover	4	8.3
Relaxes the body	1	2.1
Relieves stress	1	2.1
Source of vigour and energy	5	10.4

Source of vigour and energy — 10.4
Relieves stress — 2.1
Relaxes the body — 2.1
No side effects/hangover — 8.3
Less potent than commercial alcohol — 12.5
Heals respiratory system — 4.2
Does not contain additives therefore… — 25.0
Cleanses the digestive system — 35.4

0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0
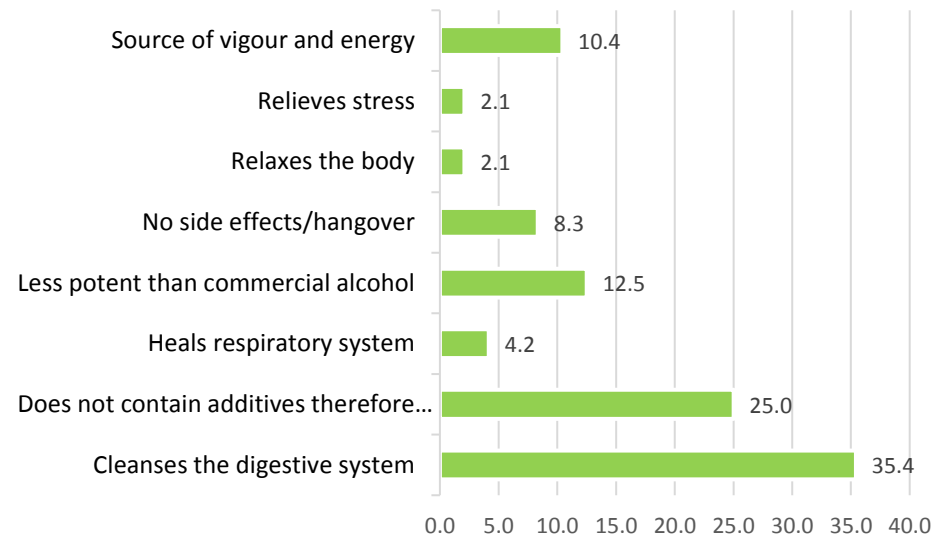
Table 77: Reasons for drinking khadi, bojalwa jwa Setswana, mokuru and Power Shake

	Khadi (n=200)	Bojalwa jwa Setswana (n=305)	Mokuru (n=33)	Power Shake (n=21)
Cheaper	79.0	63.5	72.7	100
More potent	32.0	23.4	36.4	45.0
Convenient Location	61.5	51.3	51.6	71.4
Convenient Trading Hours	39.5	34.1	30.3	61.9
No age restrictions	26.0	21.0	15.2	61.9
Better than CA	46.0	37.2	48.5	52.4
Health reasons	8.0	7.2	21.2	9.5
Tradition	70.5	81.2	75.8	60.0

The majority of respondents who drink homemade alcohol drink bojalwa jwa Setswana (n=305). Price is driving a factor among Power Shake and khadi drinkers with 100% and 79% respondents respectively stating that price is the reason for their choice.
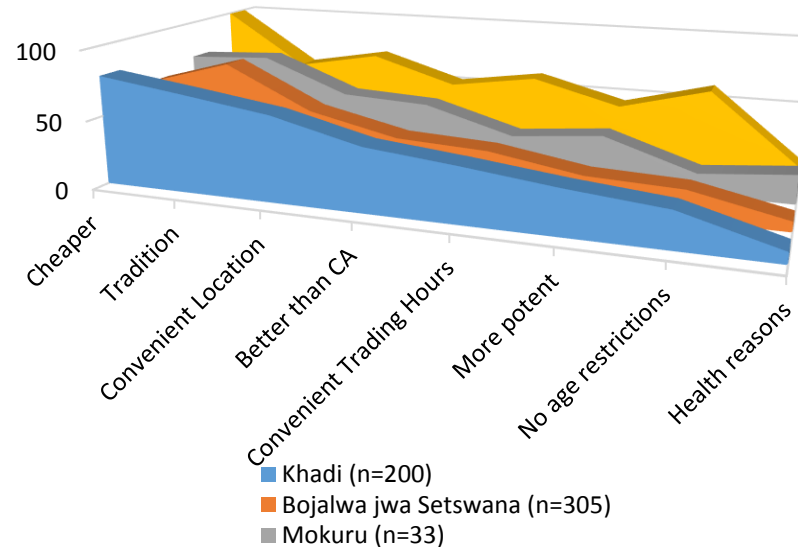
10 Price Elasticity of Demand

10.1 Hypothetical 33% Price Increase

Table 78: Change anything – 33% increase (n=1630)

	n	Percent
Yes	775	47.5
No	825	50.6
Don't know	30	1.8

48% of respondents said that a 33% increase would lead them to change their drinking patterns.
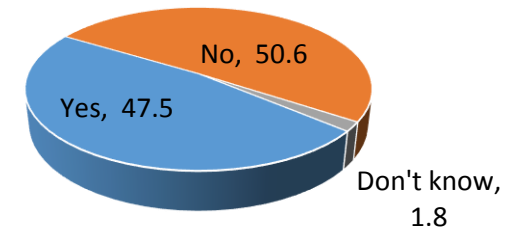
Table 79: Changes to drinking patterns in response to 33% price increase

Multiple Responses (n=1736)	Stop Drinking Altogether (n=776)	Drink less (n=320)	Drink a Cheaper Brand (n=320)	Drink a Cheaper Type (n=320)
Yes	455	282	89	101
No	316	36	230	217
Don't know	5	2	1	2

Of the 775 respondents who would change, 88% said they would drink less and 59% would stop drinking altogether.

25% and 32% respectively would drink a cheaper brand or a cheaper beverage type.
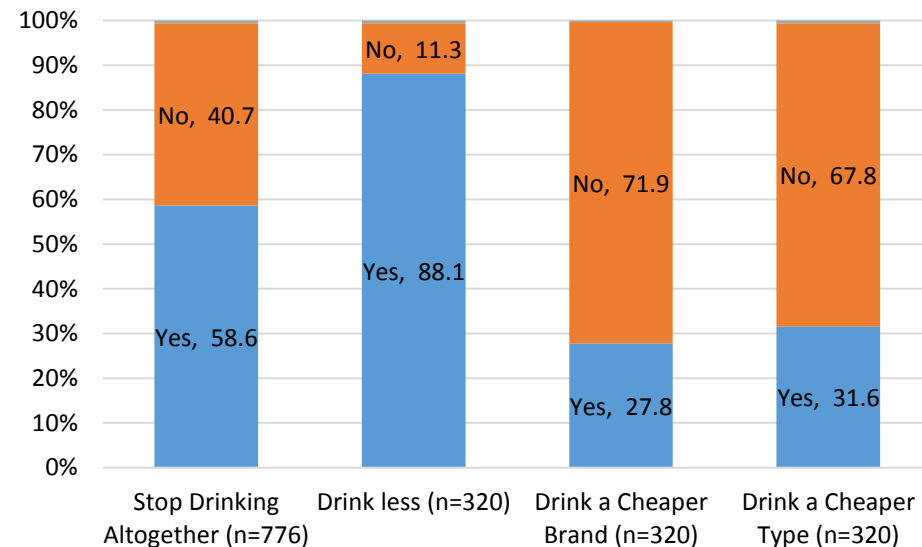
Table 80: Would drink less in response to 33% price increase (n=282)

	n	Percent
Reduce by a quarter	127	45.0
Reduce by half	114	40.4
Reduce by three quarters	10	3.5
Would stop drinking preferred beverage	26	9.2
Don't know	5	1.8

45% of those who would drink less would reduce by a quarter, and 40% would reduce by half.
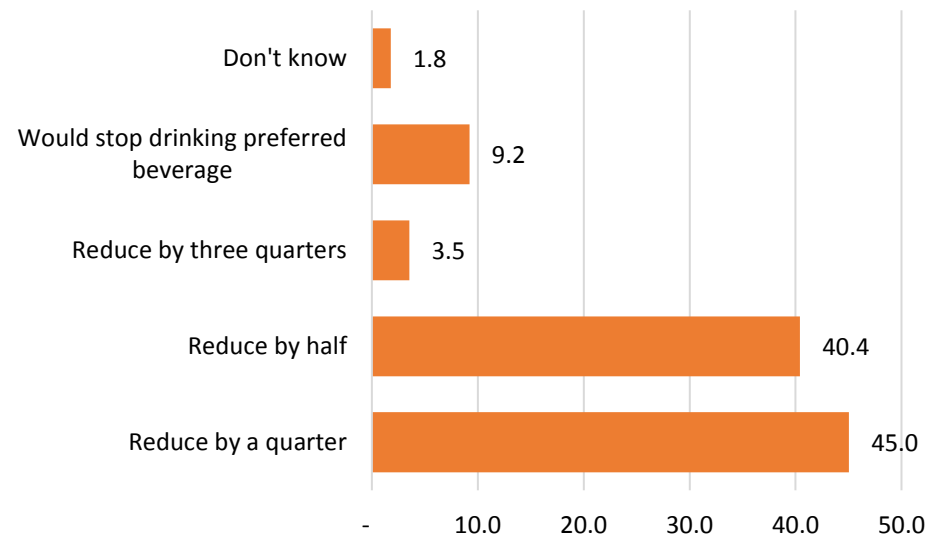
Table 81: Would drink a cheaper type in response to 33% price increase (n=102)

	n	Percent
Beer	8	7.8
Wine	10	9.8
Cider/AFB	8	7.8
Chibuku	18	17.6
Spirits	2	2.0
Homemade	51	50.0
Don't know	5	4.9

Half of the respondents who would choose a cheaper type of alcohol said they would choose homemade beverages.
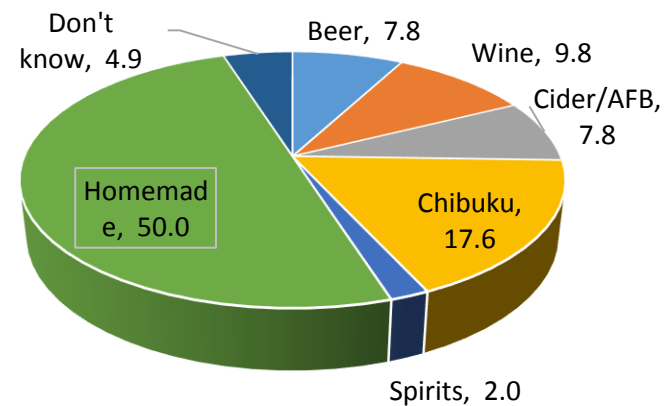
10.2 Hypothetical 66% Price Increase

Table 82: Change anything - 66% increase (n=1177)

	n	Percent
Yes	608	51.7
No	544	46.2
Don't know	25	2.1

52% of respondents said that a 66% increase would lead them to change their drinking patterns.
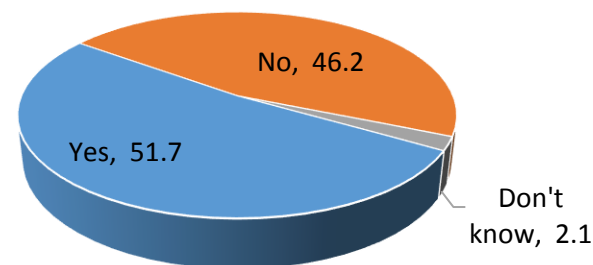
Table 83: Changes to drinking patterns in response to 66% price increase

Multiple Responses (n=1736)	Stop Drinking Altogether (n=608)	Drink less (n=387)	Drink a Cheaper Brand (n=387)	Drink a Cheaper Type (n=10)
Yes	221	332	110	159
No	387	52	271	225
Don't know	0	3	6	3
	608	387	387	387

Most respondents (86%) would drink less in response to a 66% increase. Only 28% would compromise their favourite brand.
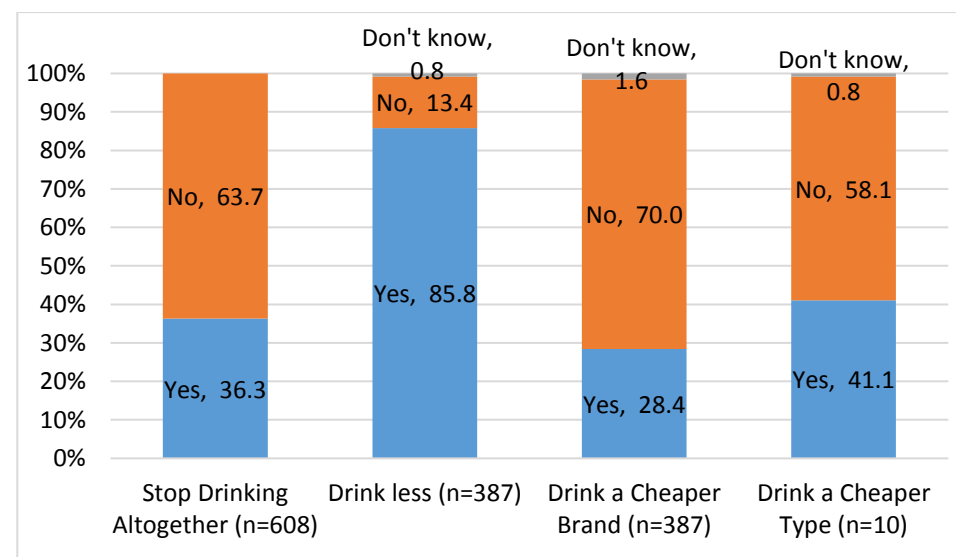
Table 84: Would drink less in response to 66% price increase (n=332)

	n	Percent
Reduce by a quarter	97	29.2
Reduce by half	133	40.1
Reduce by three quarters	35	10.5
Would stop drinking preferred beverage	57	17.2
Don't know	10	3.0

Those who said they would reduce their drinking (n=332), 40% would reduce by half and 29% by a quarter.
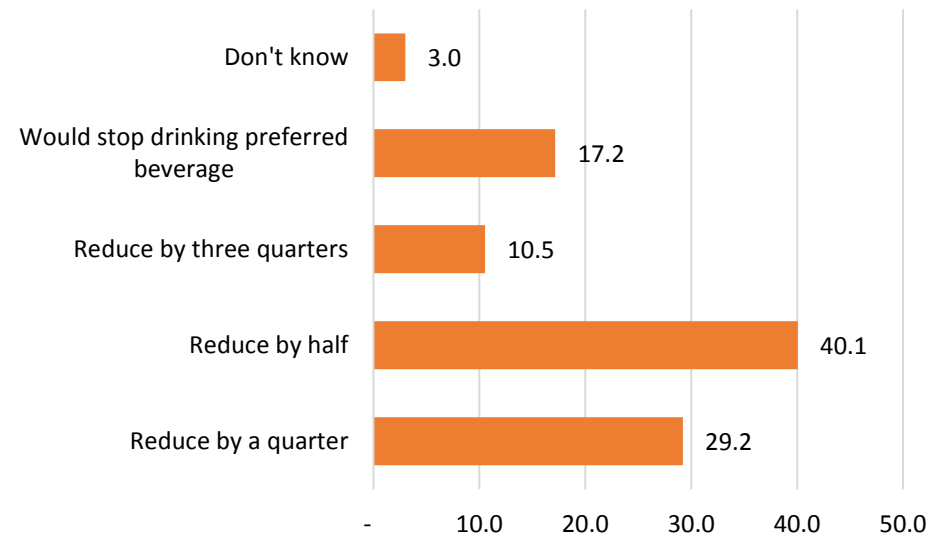
Table 85: Would drink a cheaper type in response to 66% price increase (n=159)

	n	Percent
Beer	11	6.9
Wine	22	13.8
Cider/AFB	15	9.4
Chibuku	24	15.1
Spirits	13	8.2
Homemade	64	40.3
Don't know	10	6.3

40% of the respondents who would choose a cheaper type of alcohol said they would choose homemade beverages and 15% would choose Chibuku
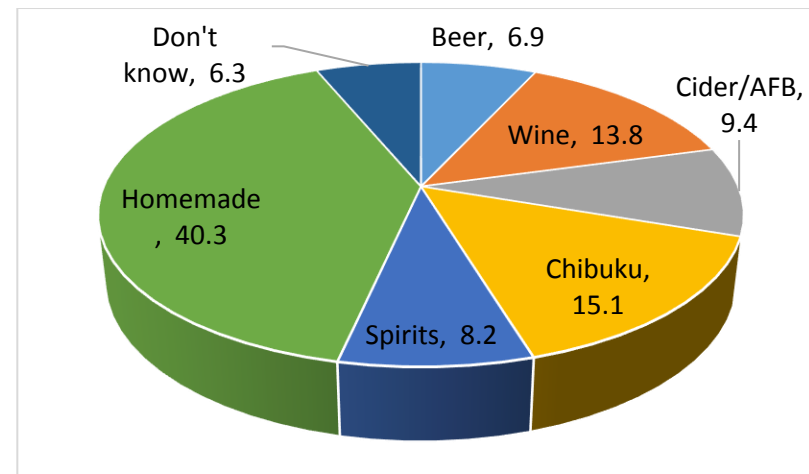
10.3 Comparison: Responses to 33% and 66% Price Increase

Table 86: 33% - 66% price increase – Change anything

Would Change Anything	33% Increase (n=1630)	66% Increase (n=1177)
Yes	775	608
No	825	544
Don't know	30	25

A 66% price increase would have only a marginally greater impact than a 33% increase.
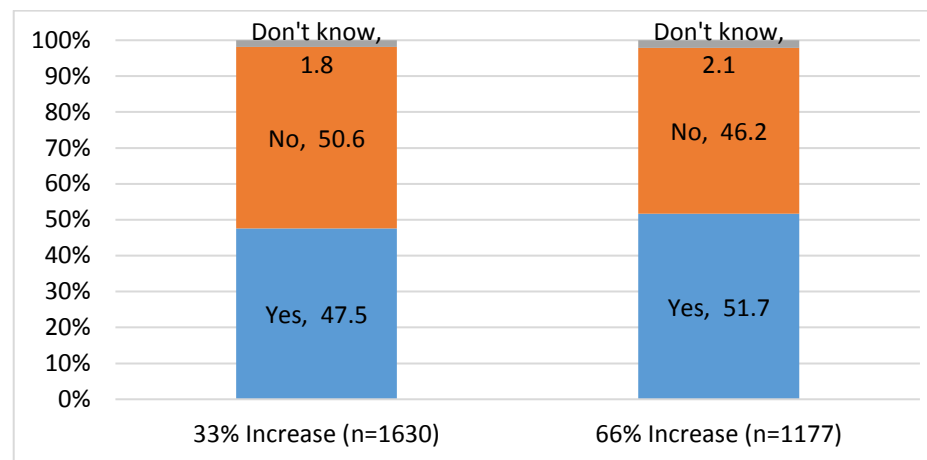
Table 87: 33% - 66% price increase – Would drink less

	33% Increase (n=282)	66% Increase (n=332)
Reduce by a quarter	127	97
Reduce by half	114	133
Reduce by three quarters	10	35
Would stop drinking preferred beverage	26	57
Don't know	5	10

A 66% price increase would lead 17% to stop drinking altogether, compared to 9% for a 33% increase.
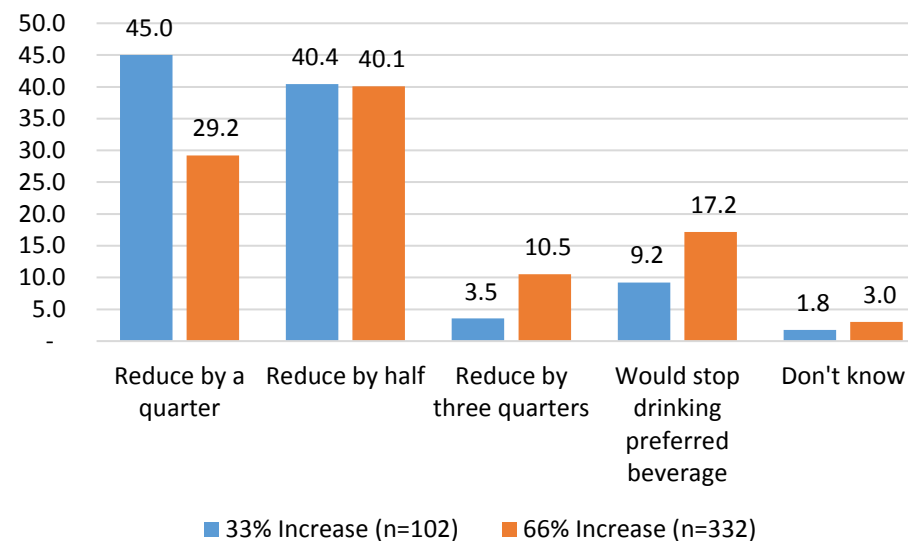
Table 88: 33% - 66% price increase – Would drink a cheaper type

	33% Increase (n=282)	66% Increase (n=159)
Beer	8	11
Wine	10	22
Cider/AFB	8	15
Chibuku	18	24
Spirits	2	13
Homemade	51	64
Don't know	5	10
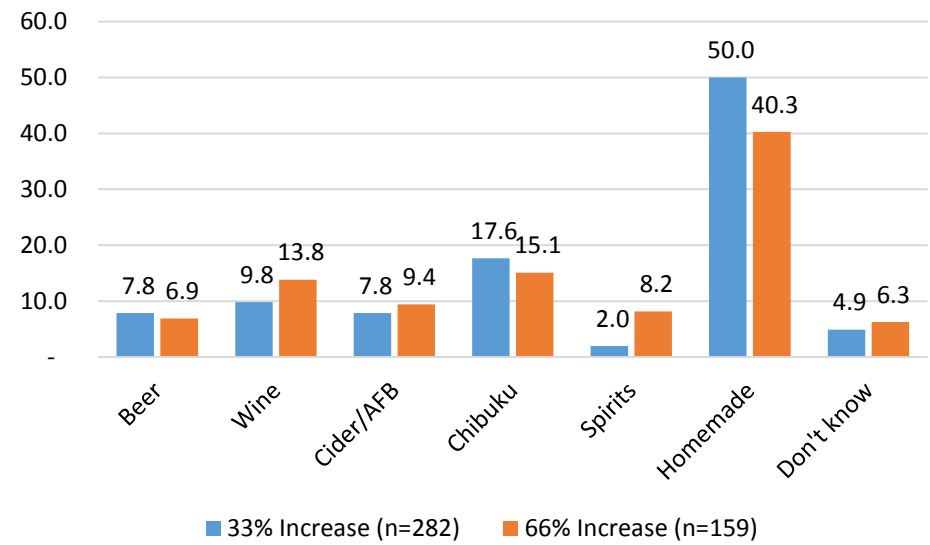
11 Appendix

11.1 Data Collection / Fieldwork

11.1.1 Field Logistics Plan

Upon receipt of final sample from IARD, EPS field coordinator designed a logistics plan based on the number of respondents in the various prescribed study locations.

Data collections started in Gaborone. 43 enumeration areas (EAs) were divided amongst four teams consisting of four research assistants (RAs). Majority of EAs in the city were completed within two weeks prior to teams being deployed to locations in nearby villages and towns such as Mogoditshane, Tlokweng, Ramotswa, Mochudi, and Molepolole. Teams were deliberately given work sites that were within an earshot of coordinating team to ensure that glitches and teething problems were addressed prior to deployment to remote quadrants of the country.

The teams were each given regions to complete. The tables below illustrate the regions that were visited by the various teams. These are preliminary segmented by Urban (High, Medium, Low and SHHA - where applicable), Semi-Urban (Semi) and Rural :

Team 1

SES	Barolong	Jwaneng	Kgalagadi N.	Kgalagadi S.	Kweneng W.	Lobatse	Ngwaketse	Ngwaketse W.	Total
High		1				1			2
Low		1				1			2
Medium		1				1			2
Rural	6		2	3	6		7	2	26
Semi	2		1	1	1		12		17
SHHA						2			2
Total	8	4	3	4	7	5	19	2	51

Team 2

SES	Boteti	Ghanzi	Ngami East	Ngami West	South East	Total
Rural	4	4	4	6		18
Semi	6	3	10	3	12	34
Total	10	7	14	9	12	52

Team 3

SES	C. Bobonong	Kweneng E	Mahalapye	S/Phikwe	Serowe/P	Total
High				1		1
Low				3		3
Rural	4		9		11	24
Semi	7	11	7		17	42
SHHA				4		4
Total	11	11	16	8	28	74

Team 4

SES	Study Districts					
	Chobe	F/town	Kweneng E	North East	Tutume	Total
Medium		5				2
Rural	3			8	13	24
Semi	1		15	2	10	28
SHHA		12				12
Urban					1	1
Total	4	17	15	10	24	70

Team 5 (2 RAs)

SES	Study Districts			
	Kgatleng	Kweneng E	South East	Total
Rural	5	9	2	16
Semi	10	8	1	19
Total	15	17	3	35

Gaborone (All Teams)

SES	Study District	
	Gaborone	Total
High	8	8
Low	5	5
Medium	10	10
SHHA	20	20
Total	43	43

11.1.2   Field Team Travel and Accommodation

Once a data collection team travelled beyond 100km outside of Gaborone, members earned an off-station allowance to cater for their transport, accommodation and meals. Each team was responsible for identifying and paying for their own transport, accommodation and meals (from their off-station allowances) while they were in the field.

11.2 Recruitment Plan

11.2.1 Preliminary Recruitment of Data Collectors and Supervisors

EPS has a pool of experienced freelance data collectors, most of whom are graduates from the Statistics and Sociology departments at the University of Botswana. Data collectors that participated in the study were drawn from this pool.

To create competition for places and allow for depth in cases of forced removal or withdrawal, EPS team decided to invite 26 individuals to training to form a wider training group. 18 data collectors were selected from the wider group and two of the weaker performing recruits were then selected to be part of a clean-up pairing that would correct and complete EAs that may have been left undone or incomplete by core teams. This pairing only worked in locations in and around Gaborone and thus did not qualify for off-station allowances.

The 16 top performing recruits were divided into four teams of four and given regions to complete once they completed enumeration areas in the greater Gaborone area.

11.2.2 Final Team Selection

Final selection of data collection team took place at the end of the training weekend. The selection was made by members of the EPS team in consultation with IARD representative. Selection was based on:

- Mastery of instrument
- The manner of information dissemination
- Accuracy of capturing responses
- Speed of interviews
- Proficiency with the use of the tablet and data transfer procedures
- Proficiency with the data security protocols

11.3 Training Plan

11.3.1 Training Workshop

Training workshop took place at The Blue Tree Golf World in Gaborone. Training took place over a three day period. Training was attended by the EPS team, wider training group as well as a representative from IARD.

The EPS team leader was responsible for leading the training workshop which covered the following areas:

Day 1

Introduction: Project goals and ethics.

Interviewing techniques: A module on interviewing techniques, do's and don'ts and workplace etiquette was conducted.

Sample: The sample will be explained and substitution protocols as agreed with by IARD will be discussed.

The survey instrument: The entire survey instrument (in English) was examined in detail, with each question being followed by a question and answer session as necessary

Confidentiality and Informed consent: The informed consent protocol was explained and the interviewer field manual examined in detail.

Day 2

Translation: The Setswana translation of each question in the instrument and each clause in the informed consent script and field manual was examined, and all participants were encouraged to suggest additional expressions, terminologies or colloquialisms as indicated. Amendments to the translations were agreed by EPS and IARD (in conjunction with represented)

Data transport and secure storage: The submission of completed interviews and interview checking procedures between the data collectors and the supervisors as well as between the supervisors and the data manager were discussed.

Instrument familiarisation: Facilitators then split the training group into pairs and asked them to complete a series of scenarios that had been produced by the EPS team.

Day 3

Pre-test: Mock interviews: Data collectors then conducted at least 2 mock interview each, with half of the data collectors playing the role of respondents and then switching roles. EPS team members closely observed the mock interviews and ascertained if there were any remaining issues affecting the smooth conduct of the questionnaire.

Day 4

Pilot: Data collectors conducted 2 days of piloting. EPS provided a pilot sample limited to three or four EAs (representing urban, urban village and rural location types) in and around Gaborone. During the pilot, each data collector conducted at least three interviews in the company of a supervisor or other senior team member acting as observer.

Debriefing: Data collectors met with the project team to debrief and iron out questions and queries.

Day 5

Post Pilot Workshop: Data collectors met with the project team for a final debriefing. The team leader gave the go-ahead to proceed with field work.

Final Data Collector Selection: The final team of 16 was selected at the end of the second pilot day. Rather than completely remove the two members that did not make it into final selection, the EPS team decided to keep them as active reserves that would assist the team to complete enumeration areas in the greater Gaborone area

Field Logistics Plan: The logistics plan was outlined in order for individual team members to begin making personal arrangements for travel as per the rollout.

Final Data Collector Selection: The final team of 16 was selected at the end of the second pilot day. Rather than completely remove the two members that did not make it into final selection, the EPS team decided to keep them as active reserves that would assist the team to complete enumeration areas in the greater Gaborone area

Field Logistics Plan: The logistics plan was outlined in order for individual team members to begin making personal arrangements for travel as per the rollout.

The first day of training was devoted to research ethics, techniques as well as practical data collection lessons. The latter part of the day was devoted to work-shopping the Setswana translation in preparation for sessions that were focused on the instrument. 6 training recruits that were not responsive during this session were asked not attend the rest of training.

Day two was started with a wrap up of the translation session from the previous day. The team was then allowed to play with the Tablet and familiarise themselves with the instrument application.

Instrument training entailed walking the team through various scenarios and illustrating how different permutations lead to different paths. Facilitators then split the training group into pairs and asked them to complete a series of scenarios that had been produced by the EPS team. There was no culling at the end of this training session as recruits were still getting to grips with the tablet and instrument.

The third day was primarily focussed on aptitude and proficiency with the instrument. Data collectors were asked to conduct mock interviews in front of the class and were then subjected to peer review after the interview was completed. Those that were unable to perform at the required level were eventually not considered for final selection. This exercise allowed facilitators to gauge trainees that had been reserved in the first two days of training. Two recruits were culled at the end of this session and 18 RAs were asked to participate in the pilot exercise.

Pilot took place over two days. EAs were identified and RAs were shadowed during interviews by core EPS coordinators to ensure that training methodologies were adhered to.

11.4 Confidentiality and Informed Consent

11.4.1 Issues of Confidentiality

In observing the requirements of carrying out a study that uses human beings as subjects as detailed in various guidelines for carrying out studies involving human subjects, the issue of confidentiality was paramount. RAs involved in the study were sworn to a code of secrecy and strict measures were put in places through intensive training ensuring that these requirements were adhered to.

11.4.2 Risks associated with participating in this study

This was a non-invasive cross-sectional study hence anticipated risk was minimal. The researchers understood that random sampling may expose participants to danger since they may be viewed with suspicion by those who did not participate. The researchers explained the confidentiality assurances to participants and carried a copy of the study permit.

11.4.3 Informed Consent

Consent explanations were conducted for all respondents. As the respondents are to be assured of total anonymity, it was not considered advisable to expect respondents to sign consent forms, thereby divulging their identity. The consent form were therefore be administered verbally and signed by the RA affirming that the respondent had consented to participate. Respondents under 18 required their parent's or legal guardian's consent to participate.

The participation in the study was completely voluntary for all respondents with the right to withdraw participation from the study at any stage and without any repercussions.

11.4.4 Confidentiality

The respondents selected for the study were allocated coded references. The questionnaires did not bear the names of the participants or the exact location of the household. All respondents were coded and only the senior members of the research team had access to respondent information.

11.4.5 Risks

There was no physical risks to any of the participants apart from the fear of exposing personal details relating to consumption of alcoholic beverages and household financial information. No respondent was required to taste or consume any beverage. All respondents were reassured of their total anonymity and there was no exposure of any respondent's personal details.

11.5 Official Authorisation

All research in Botswana involving human subjects requires authorisation from the Health Research Unit of the Ministry of Health. An application for ethics authorisation was lodged with the Unit on 21st June 2016. The application included the revised Technical and Financial Proposals and revised instruments. Authorisation to proceed with the study was duly received on 5th of August 2016.

11.6 Field Work

The following bullet points highlight some of the key occurrences and challenges during the conduct of the survey:

- Data collection started on the 8th of September 2016.
- 43 EAs in Gaborone were divided amongst the four-and-a-half teams.
- Most of the EAs were completed within two weeks.
- Three EAs had to be replaced for the following reasons[3]:

Refusal by property developer to grant RAs access to a gated housing estate

Refusal by gated golf estate residents to participate in the study

Diplomatic residences fell within the study site and this raised security concerns

- Teams were given EAs in the greater Gaborone area and surrounding villages to complete before moving to outlying regions

Some teams did not complete these study sites prior to leaving and rather elected to complete them upon return

A fifth team of 2 RAs was introduced to complete villages close to Gaborone such as Mochudi, Ramotswa, Oodi, Rasesa, Bokaa and Morwa.

- Teams were intentionally kept within the south eastern region during the rollout phase due to device, software and network difficulties

Devices[4] originally purchased were faulty and had to be returned and replacements proved difficult to source

Fortunately the form worked on web browsers and RAs were able to work on their personal laptops, phones and iPads and tablets while device issues were addressed

Due to sporadic internet coverage in remote villages and settlements, RAs could not leave for these areas before new devices were purchased and loaded with an application that worked offline.

Team 3 and 4 were permitted to leave for Central and North Eastern region as internet coverage in Serowe and Francistown was good enough for RAs to use web browsers.

The Research Coordinator delivered devices to RAs in these locations and installed applications.

- Due to delays in acquiring data collection devices, Team 2 was asked to go Mahalapye while new devices were delivered.

This decision was made to reduce the chance of RAs travelling to areas without internet connection prior to receiving suitable devices

- Team 1 met regulatory challenges with local authorities in the Kweneng West village of Khudumalapye.

Authorities denied research team access to the village due to absence of a hard copy of the research permit letter.

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[3] In such cases the statistician was consulted for the appropriate strategy.

[4] Unfortunately the software developer, originally contracted to develop an android-based app ("a 3-day job") was eventually (after 6 weeks) only able to produce the app on a Windows platform, hence the last minute rush to acquire suitable Windows based devices which needed to be ordered in from various stores in South Africa.

The team was detained while authentication was confirmed and the matter was resolved without incident.

- Team 4 was unable to complete interviews at Dukwi refugee camp as this is a restricted area
. The location was replaced with Makuta, a village also located within the Tutume district.
- The following EAs do not have the requisite 16 interview per EA complement due to network and device glitches: Palapye EA 0413, Makopong 0082, Majwaneng 0645, Selepa/Tumasera EA0434 and Letlhakane 0012.

Completed interviews were submitted but did not appear on the database. RAs were not aware of this while they were within study location and a return to the EA for one interview was not cost effective.

These were isolated incidents and majority of submissions were successfully uploaded.

- The management team visited and shadowed teams while they were in remote locations. As expected, the ease of navigating through the application and knowledge of the questionnaire had vastly improved. Interview times had reduced and RAs were a lot more efficient when identifying EA parameters and selecting household respondents.

The terrain that RAs had to traverse in order to reach respondents in some instances was challenging.

The heat was also a factor that hampered efficiencies, particularly during the last weeks of October when parts of Botswana recorded temperatures of up to 48 deg.

- Unfortunately one RA had personal problems and did not complete the entire data collection process. This meant that teams had to pitch in and complete remaining EAs once they returned from their respective trips.

11.6.1 General Response of Respondents

- Most respondents were either very welcoming or very sceptical. But most of the sceptical ones would eventually open up a lot more as the interview progressed. Many initially thought the project was part of a mission to stop alcohol consumption completely, while others believed the RAs were promoting alcohol consumption. Some respondents began the interview by saying they don't drink at all or that they used to drink, but eventually would admit that they still drank, and the interview would proceed accordingly.
- Common trends:
  - Respondents from rural areas were very cooperative and always assisted and did their best to provide all answers
  - Many did not have cell phones but most didn't mind giving out their numbers freely
  - Urban respondents were generally less cooperative
  - Many wanted to 'alter' the questionnaire so it would suit what they wanted to say

11.7 Challenges

Challenges that occurred emanated from difficulty in bedding in the data collection application and sourcing devices that were compatible with the software that was purpose-developed for the study. These will be interrogated further in appropriate subsections below.

11.7.1 Software Issues

- The web version of the survey was a bit tricky to use on mobile phones
- The App was a lot more stable on the laptop/tablet.

11.7.1.1 Remedial Action

- New web developers will be identified and engaged to troubleshoot and refine the application for future projects.

11.7.2 Devices Issues

- Sansui tablets were of poor quality. A batch was returned to the supplier while the remaining units did not function optimally.
- The application caused some devices to overheat in the high ambient temperatures, requiring a re-boot.
- The Windows-based devices weren't user friendly

11.7.2.1 Remedial Action

EPS will identify software developers that can generate an application that can be hosted on all platforms. Budget Windows platform devices are not well made.

11.7.3 Project Authorisation Issues

- RAs employed a standard courtesy protocol of announcing their presence in the village at the local administrative office (at the Kgotla, or tribal court, in most instances).
- There were instances where local authorities did not accept the documentation that was presented and demanded explicit instructions from the Office of the President before permitting RAs to enter the village.
- This was the case in the Kweneng West region (particularly Motokwe, Salajwe and Khudumelapye villages)

11.7.3.1 Remedial Action

- EPS will continue to work closely with officers at the Research Division in the Ministry of Health to devise mechanisms that improve information dissemination with regard to studies that have permits to conduct research on human subjects in the country.
- This is a communication issue and further dialogue is necessary.

11.7.4 Network Issues

Network providers do not offer equal coverage or signal quality in all areas of the country.

- This was especially true for data (internet) services.
- As study tools were heavily dependent on internet connectivity to function, the poor connection made working conditions difficult.
- Weak network connectivity meant that RAs had to wait till the end of day to upload completed questionnaires to the cloud database.

11.7.4.1 Remedial Action

- EPS will endeavour to identify and utilise systems that are not dependent on internet connectivity to function optimally.

11.7.5 Logistic Issues

11.7.5.1 Routes & Maps

- Using Google maps was very convenient
- RAs were able to locate EAs and the boundaries with ease.
- The only challenge was trying to access them in areas with a weak network coverage.
- If possible all maps with all EA's before starting the data collection

11.7.5.2 Transport

- A number of EAs are located in rural places where there are no tarred roads
- Use of own transport is a tricky one and it will be much better if Eps provided transportation

11.7.6 Other challenges

- Most houses would be vacant during the morning/afternoon

- The chosen candidate would not be available (at work/church/farm)
- Biggest challenge was the use of the birthday criteria.
- Most families (especially large families) would not know the ages and birth dates of other household members
- People were reluctant to give out their cell phone numbers.

Most enumeration areas were classified as Semi-Urban, closely followed by rural areas. Kweneng East district had the highest number of Semi-Urban EAs. Tutume had the highest number of settlements that were classified as rural.

Self Help Housing Agency (SHHA) offers low-income housing on subsidized basis to people earning less than P36 400 a year. Study sites that fall within the SHHA classification were in Gaborone, Francistown, Selebi-Phikwe and Lobatse. Gaborone had the highest number of SHHA locations while Lobatse had the lowest.

High SES study sites were predominantly found in Gaborone and these locations were the most difficult to access and complete.

EA SES by District

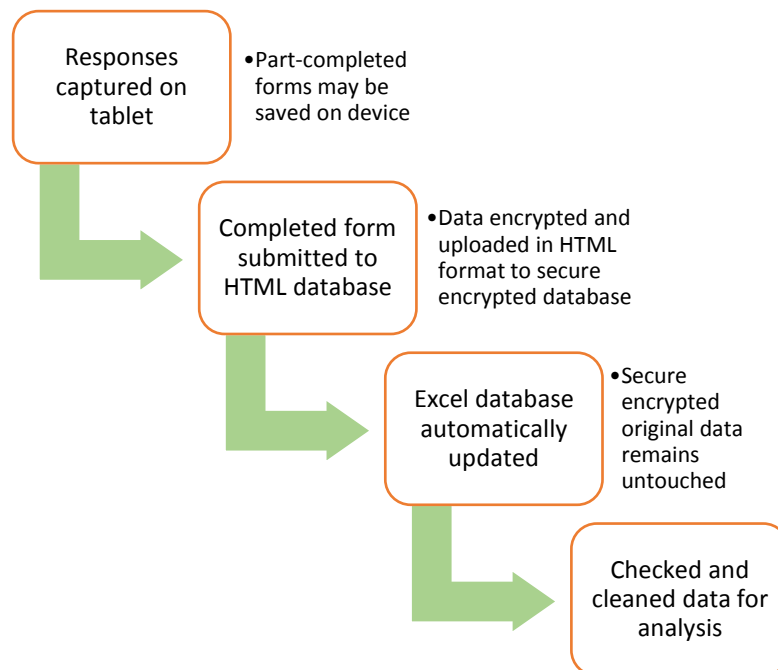| Study Districts	Area SES							
	High	Low	Medium	Rural	Semi	SHHA	Other Urban	Grand Total
Barolong				6	2			8
Boteti				5	6			11
C. Bobonong				4	7			11
Chobe				3	1			4
F/town			5			12		17
Gaborone	8	5	10			20		43
Ghanzi				4	3			7
Jwaneng	1	1	1					3
Kgalagadi N.				2	1			3
Kgalagadi S.				3	1			4
Kgatleng				5	10			15
Kweneng E				8	34			42
Kweneng W.				6	1			7
Lobatse	1	1	1			2		5
Mahalapye				9	7			16
Ngami East				4	10			14
Ngami West				6	3			9
Ngwaketse				7	12			19
Ngwaketse W.				2				2
North East				8	2			10
S/Phikwe	1	3				4		8
Serowe/P				11	17			28
South East				2	13			15
Tutume				13	10		1	24
Grand Total	11	10	17	108	140	38	1	325

11.8 Data Entry and Cleaning

11.8.1 Data Entry

As data entry occurred by automated upload periodically during data collection, any problems encountered by the data management team were immediately communicated to data collectors in the field.

Any non-numeric (text) responses to open-ended questions that were not pre-coded were collated, grouped and back coded.

A schematic of the Database Building Process is shown below:

Responses captured on tablet	• Part-completed forms may be saved on device
Completed form submitted to HTML database	• Data encrypted and uploaded in HTML format to secure encrypted database
Excel database automatically updated	• Secure encrypted original data remains untouched
Checked and cleaned data for analysis	

11.8.2 RA Errors

The overall quality of data collected was good, and RA error was confined to the first two or three days in the field. In the first days of the study, one common mistake the RAs made was not ensuring that there was consistency between Module 4 and Module 10, i.e. that the figures in module 4 equalled or exceeded those in Module 10. Two de-briefing and re-training sessions ensured that RAs no longer made this mistake.

Another early error involved Module 8. Initially A few RAs didn't seem to understand that the different categories of alcohol, Commercial, Surrogate, Contraband etc., were to be kept separate when interviewing respondent. This issue was also addressed during retraining at the early stages. All affected questionnaires were corrected with the RA and/or respondent involved.

11.8.3 Software and Network Errors

The software was continually being refined, and the final version was only delivered in week three of data collection. During this refinement process, ae a few glitches as a result of device/software/ network malfunctions, and skip pattern failures appeared (where earlier versions had functioned correctly) and these had to be cleaned up manually. One example was when the questionnaire would force a data collector to enter demographic information for the 11th household member even though there were only 10 household members. During the early days of the data collection, with certain devices, Module 14 and 15 would appear even though the respondents were lifetime

abstainers. Data collectors would then have to enter dummy data into these modules ("don't know/refused"), as a means to proceed to Module 16 from Module 3. These errors were immediately noted and cleaned.